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THE CONSTRUCTION OF AN INDIVIDUAL, DIAGNOSTIC TEST OF BRAILLE PERCEPTUAL SKILLS.

Leo F. Hanley, 1965

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Dissertation

THE CONSTRUCTION OF AN INDIVIDUAL, DIAGNOSTIC TEST OF BRAILLE PERCEPTUAL SKILLS

VOLUME I

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Submitted by

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In Partial Fulfillment of Requirements for
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1965

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INTRODUCTION

That a dramatic metamorphosis has taken place is evident when one compares the early aims of the instruction of the blind and the purposes for which the blind are educated today. The provision of asylum for a dependent and isolated minority, once a primary function, has given way to the current emphasis on providing the blind with the means of participating in and contributing to the society of which they are an integral part. Hathaway and Lowenfeld[1] point out that residential schools now follow, for the most part, the grade by grade courses offered in public schools. Ashcroft,[2] noted that for the first time in the education of the blind in this country, a century and a quarter, a majority of blind students were registered in public schools as opposed to residential schools in 1959. Trosch[3] found that more than 915 blind college

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1/Winifred Hathaway and Berthold Lowenfeld, "Teaching the Visually Handicapped," Forty-ninth Yearbook of the National Society for the Study of Education, Part II, p. 144.

2/Samuel C. Ashcroft, "The Blind and Partially Seeing," Review of Educational Research, December, 1959, p. 519.

3/Carol Trosch, "First National Survey of Blind Students Enrolled in Colleges and Universities," Higher Education, April, 1958, p. 121.

students were registered in 415 colleges and universities in the United States in 1957. This change has not come about without some difficult moments both for the educator and for the blind child, but it has also brought some additional insights. After weathering the initial period of cautious evaluation, the classroom teacher soon recognizes that the blind child is first a child, with all the needs of children his or her own age, and secondly blind, a condition which entails some *additional* needs.

To continue this analysis one step further, it might be said that the Braille reader is first a reader, with all the obstacles to be hurdled which all beginning readers must face, and secondly a user of Braille, a medium with its own peculiar perceptual characteristics. The purpose of this test is to develop individual diagnostic tests of Braille letter- and word-knowledge. It is hoped that through the use of these instruments, the teacher of the blind will be able to set more specific goals than are now possible, when teaching beginning reading or when undertaking remedial instruction.

Definitions of Terms

Blind	"Most State and Federal laws pertaining to blind persons define blindness for various official purposes as a visual acuity in the better eye with best correction

	which does not exceed 20/200 or a defect in the visual field so that the widest diameter of vision subtends an angle of no greater than 20 degrees. The person with 20/200 visual acuity is able to recognize from a distance of twenty feet things which those with average vision see at a distance of two hundred feet."[1] The term, as used in this study, refers to children who do not possess enough usable vision to read visually.
Braille	Braille is a raised dot, punctiform, system of reading and reading employed by the blind. Braille includes a literary code and special codes for the writing of music, mathematics and scientific formulae. The literary code, as it is now officially approved, consists of three grades: I, II and III.
Grade I Braille	This grade of Braille consists of the letters of the alphabet, marks of punctuation, numbers, and composition signs which are peculiar to Braille, e.g., capital sign. Words written in Grade I Braille are fully spelled.
Grade I½ Braille	This grade of Braille, used in the United States from 1917 to 1932, includes the signs of Grade I Braille plus 44 of the contractions found in Grade II Braille.
Grade II Braille	This grade of Braille, English Braille--American Edition, 1959, includes all the symbols of Grade I

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[1] John W. Jones, *Blind Children; Degree of Vision, Mode of Reading*, Office of Education, Department of Health, Education, and Welfare, U.S. Government Printing Office, Washington, D. C., 1961, p. 2.

	Braille plus 189 contractions and short-form words. Grade II Braille, with the exception of punctuation marks, numbers and some composition signs, is the medium employed in this study.
	Grade III Braille uses the symbols of Grade II and more than 500 short-word forms. This system is utilized by a limited number of people.
Cell	The dots used in Braille are grouped in rectangular cells, three-dots high and two-dots wide. To facilitate description in reading, the dots are numbered downward on the left 1, 2, and 3, and on the right downward 4, 5, and 6: 1 4 2 5 3 6
Character	Characters are made by using one dot or two or more dots in various combinations within the cell. Sixty-three combinations of dots or characters are possible: six 1-dot characters, fifteen 2-dot characters, twenty 3-dot characters, fifteen 4-dot characters, six 5-dot characters, and one 6-dot character.
Symbol, sign	These terms are synonymous, as used in this study, to represent individual letters, part-words and whole words, and may consist of one or more characters.
Contraction	Symbols may represent contractions, a shortened expression of a sequence of two or more letters. Contractions may consist of one or more characters and may represent part-words or whole-words. Upper-cell contractions use

	dots 1 and 4, the two top dots in the cell; lower-cell contractions use dots 2,3,5 or 6.
Configuration	Configurations are made up of a uniform pattern of dots which remain the same in regard to alignment and extension. These patterns assume a different position through rotation or reversal within the cell itself. The sixty-three characters of the Braille cell can be reduced to nineteen configuration patterns.
Alphabetically Abbreviated Words	Single letters of the Braille alphabet, when standing alone, represent whole words which begin with the letter itself, e.g., "p," when standing alone, means "people."
Short-form Words	Abbreviated forms are sometimes used to express the whole word, e.g., "afn" means "afternoon."

CHAPTER I

REVIEW OF THE LITERATURE AND RELATED RESEARCH

1. The Significance of Letter-Knowledge in Learning to Read Print

Word and letter perception is a primary prerequisite of the act of reading. Gray[1/] lists four components in the interpretation of printed matter: (1) word perception, (2) comprehension of the ideas represented by the words, (3) reaction to these ideas, and (4) the assimilation or integration of the ideas with previous knowledge and experience. The implied interdependence and order of these steps place the act of word perception in a role of basic importance.

In discussing the visual perception of words and letters, Durrell[2/] points out that "tests of visual discrimination will aid the teacher in discovering the level at which to begin reading readiness with pupils, and will serve also to indicate what letters need to be taught." Directions for the construction and administration of tests of three different levels of perception ability (measuring

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[1/] William S. Gray, On Their Own in Reading, Scott, Foresman and Company, Chicago, Illinois, 1960, p. 10.

[2/] Donald D. Durrell, Improving Reading Instruction, Harcourt Brace and World, New York, 1956, p. 54.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

the ability to match letters flashed to letters listed in a line offering four alternatives, to identify letters named, and to give the names of letters) following this statement.[1/]

In a study conducted on more than two thousand first grade children, Nicholson[2/] established evidence of the levels of difficulty for five steps in visual perception of letters. In order of increasing difficulty these were: matching letters directly, identifying letters shown (flash card method), identifying letters named, giving names of letters, and writing letters from dictation. Using a large part of the same sample, an analysis of the relationship between the results of letter knowledge testing conducted in September and the scores achieved on the Detroit Word Recognition Test administered in June was made by Gavel.[3/] September tests which best predicted June reading achievements were: writing letters dictated, naming letters, identifying letters named, and learning rate for words. September tests which correlated less than .50 with June reading achievements were the following: intelligence

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[1/] *Ibid.*, pp. 54-60.

[2/] Alice Nicholson, "Background Abilities Related to Reading Success in First Grade," Unpublished Doctoral Dissertation, Boston University, Boston, Mass., 1957.

[3/] Sylvia R. Gavel, *June Reading Achievements of First-Grade Children*, Unpublished Doctoral Dissertation, Boston University, Boston, Mass., 1957, pp. 149-152.

quotient, mental age, sounding letters, identifying words shown, identifying sound in words and matching letters. The value of tests of letter and word-perception (knowledge) abilities may be inferred from their presence in most diagnostic testing batteries, for example: The Monroe Diagnostic Reading Examination,[1] the Diagnostic Reading Scales by Spache,[2] and the Durrell Analysis of Reading Difficulty.[3]

Tests of letter and word-knowledge in Braille might well serve the same useful purpose as these tests employed in testing the reading readiness of sighted subjects. A review of the literature and research on Braille did not reveal a formal instrument which would permit measurement of the abilities peculiar to Braille on the five levels of letter-or word-knowledge already cited.

2. Braille Reading

Several methods of touch reading for the blind have been developed over the years. Two forms, the "raised line" type as exemplified by the "incomplete" raised Roman Alphabet symbols of Moon and the "raised dot"

1/Marion Monroe, Diagnostic Reading Examination, C. H. Stoelting Company, Chicago, Illinois, 1928.

2/George S. Spache, Diagnostic Reading Scales, California Test Bureau, Monterey, California, 1963.

3/Donald D. Durrell, Durrell Analysis of Reading Difficulty, Harcourt, Brace and World Company, New York, 1956.

(punctiform) type used in New York Point, English Braille and American Braille persisted into this century. The final selection of Braille, as it is now used, did not come easily. Rodenberg[1/] and Irwin[2/] give excellent accounts of the history of touch reading and the violent "war of the dots."

The Structure of Braille.-- In 1829 Braille published his first exposition on dot writing. This system was an adaptation of a form of tactile code devised by Charles Barbier, a captain in the French Army. Barbier, an ardent student of codes, had tried to introduce his code as a form of "night writing" to be used in communications between soldiers on the battlefield. Barbier met Braille in 1819 and interested the young student in his form of dot writing. Braille finally devised a "cell" of six dots, two wide and three high, which was one half of the number of dots used by Barbier. The six-dot cell remains unchanged to date.

In reading, the dots are numbered 1, 2, and 3 downward on the left and 4, 5, and 6 downward on the right to facilitate description:

[1/] Louis W. Rodenberg, The Story of Embossed Books for the Blind, American Foundation for the Blind, New York, 1955.

[2/] Robert B. Irwin, "The War of the Dots," and excerpt from As I Saw It, American Foundation for the Blind, New York, 1955.

1 4
2 5
3 6

Meyers, _et al._,[1] stated the dot specifications currently used are most advantageous for adults at .09 inches between dots within the cell, .16 inches between cells, .22 inches between lines of Braille; dot height, .015 inches, and dot-base diameter, .005 inches. For school children a cell space of .123 inches produced a greater reading rate than the current cell spacing of .16 inches. The six dots in each cell can be arranged into sixty-three geometric patterns, utilizing from one to six dots. The sixty-three patterns or "characters" can be classified into nineteen "configurations" or basic groupings which become different characters by rotation within the cell. The characters can be further classified into the number of dots they use: 6 one-dot characters, 15 two-dot characters, 20 three-dot characters, 15 four-dot characters, 6 five-dot characters, and 1 six-dot character. The distribution of possible characters by number of dots and configuration-group is given in Table 1.

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[1] E. Meyers, Doris Ethington and Samuel Ashcroft, "Readability of Braille as a Function of Three Spacing Variables," _Journal of Applied Psychology_, 1958, 42: 163-165, as quoted by Carl T. Rodgers, "Proposals for Research of Problems Encountered by Users of Embossed Type for Reading and Writing," _Report of Proceedings of Conference on Research Needs in Braille_, American Foundation for the Blind, New York, 1961, p. 7.

Table 1, Characters Grouped by Configuration and Number of Dots

Configuration Group	No. of Dots	
1	1	⠁ ⠂ ⠄ ⠈ ⠐ ⠠
2	2	⠃ ⠆ ⠘ ⠰ ⠉ ⠒ ⠤
3	2	⠑ ⠊ ⠢ ⠔
4	2	⠅ ⠨
5	2	⠡ ⠌
6	3	⠙ ⠋ ⠲ ⠖ ⠓ ⠚ ⠦ ⠴
7	3	⠇ ⠸
8	3	⠍ ⠩ ⠥ ⠬
9	3	⠕ ⠪
10	3	⠎ ⠱ ⠣ ⠜

(Concluded on the next page)

Table 1. (concluded)

Configuration Group	No. of Dots	
11	4	oo •• oo
12	4	oo •• oo oo •• oo
13	4	oo oo o• •o •o o• •o o• o• •o oo oo
14	4	oo oo o• •o o• •o o• •o o• •o oo oo
15	4	o• •o oo oo o• •o
16	4	•o o• oo oo o• •o
17	5	oo oo o• •o oo oo
18	5	o• •o oo oo oo oo oo oo oo oo o• •o
19	6	oo oo oo

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible] [illegible]	[illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible] [illegible] [illegible]	[illegible]

Literary Braille, as now officially approved, consists of three grades. Grade I Braille is composed of the letters of the alphabet and marks of punctuation. Grade II (Standard English Braille--American Edition, 1959) embraces all of the symbols of Grade I Braille and an additional 189 contractions and short-form words. Contractions may represent two or more letters or whole words. Grade III Braille contains more than 500 contracted forms (contractions, short-form words and consonant spelling) in addition to the symbols used in Grade II. Grade III is used as a "short-hand" device by a limited number of people. Another grade of Braille Grade I½ used the symbols of Grade I and 44 of the contractions in Grade II and was the "official" code in the United States from 1918 to 1932; this grade of Braille is no longer used.

In order to form the large number of contractions included in Grade II Braille, the basic 63 characters change their meaning by their relation to adjoining or nearby characters. For example, the character composed of dots 2-5-6 (⠲) in the initial position in a word means "dis-," in a medial position in a word means "dd," and in the final position in a word means "period." In other instances a symbol might have one meaning in a larger word, a second meaning when standing alone, a third meaning when standing alone but

prefixed by another character, and a fourth meaning when prefixed by another character in a larger word.

For example:

⠝ in a larger word means "n"

⠝ when standing alone, means "not"

⠝ when standing alone but prefixed
with dots 5(⠐) means "name"

⠝ when prefixed in a larger word by
dot 6(⠠) means "ation."

This problem of "context" through position in relation to other symbols is a prime factor in the readability of Braille; this theme will be developed more fully later in this chapter.

Grade II Braille in the Primary Grades.-- The literature of the thirties and forties reflects the conflict of opinions on the question of the introduction of Grade II Braille into beginning reading. It was not tried experimentally until the late 1940's and early 1950's when small experiments were made in the early introduction of Grade II Braille in the primary grades. Biggs[1]

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[1] Ione Biggs, "Introduction of Grade 2 Braille in the Primary Grades," *New Outlook for the Blind*, April, 1950, 44: 103-105.

describes the "backyard research" conducted in eight schools, when the teachers agreed to the early introduction of Braille in their schools at the 1947 convention of the American Association of Instructors of the Blind. Observations of the effects of this change in mode of instruction led to the conclusion that the early introduction of Grade II Braille held several advantages: (1) no re-learning process of two or more grades of Braille was necessary; (2) the use of contractions led to a shortening of word length and seemed to benefit the slow-learner with a short attention span, i.e., fatigue was reduced; and (3) no detrimental effects were observed in writing or spelling.

The space-saving value of Grade II Braille over Grade I½ Braille had already been discussed and demonstrated by Irwin and Wilcox.1/ A later study by Staack2/ found a 26 per cent saving in space through the use of Grade II Braille.

Perhaps the study with the most telling effect for the early introduction of Grade II Braille was that of

---

1/Robert B. Irwin and Ruth E. Wilcox, A Comparative Study of Braille Grade One and One-Half and Braille Grade Two, American Foundation for the Blind, 1929.

2/Gerald F. Staack, A Study of Braille Code Revision, Unpublished Master's Thesis, Massachusetts Institute of Technology, Cambridge, Mass., 1962, p. 74.

Hooper,[1] who showed that 144 of the 185 contractions in Grade II Braille (pre-1959 code) were already being used in the reading vocabulary lists of primary grade children.

The use of Braille.-- Using figures furnished by the American Printing House of the Blind, Jones[2] classified 40 per cent of 14,125 of the 14,570 students registered in 1960 as possessing only light perception or no vision at all. Fifty-eight per cent of the total number of students were classified as Braille readers, with an overwhelming majority of the Braille-readers coming from residential schools.[3] Nolan,[4] in a replication of this study in 1963, found a decrease in the percentage of students using Braille, but that this sub-group still represented 53 per cent of the students registered.

1/Marjorie S. Hooper, "Braille Contractions and Children's Reading Vocabularies," Annual Proceedings of the American Association of Workers for the Blind, 146, pp. 18-41.

2/John W. Jones, Blind Children; Degree of Vision, Mode of Reading, U. S. Department of Health, Education and Welfare, Office of Education, U. S. Government Printing Office, Washington, D.C., 1961, p. 9.

3/Ibid., pp. 32-33.

4/Carson Y. Nolan, Blind Children; Degree of Vision, Mode of Reading, 1963 Replication, American Printing House for the Blind, Louisville, Kentucky, 1963, p. 3.

Graham[1/] notes a discrepancy in the number of students registered with the American Printing House for the Blind and the much larger number of blind children listed in national surveys. Translating the percentages of the numbers of registered students who use Braille into the percentage of potential registrees, the proportion of Braille-users is diminished. This seems to be particularly true of the adult blind. To some degree, the unavailability of material, the lack of recent material, the time needed to transcribe material into Braille as opposed to the comparative ease of recorded material, and the actualuse of reading by the individual might contribute to the fact that Braille is used by a minor part of the blind population.

With the advent of recorded material, the use of Braille, a far more complex and cumbersome mode of learning, was felt by some to bring diminishing returns for the extra effort expended. Lowenfeld[2/] compared the two modes of learning and came to the following conclusions:

[1/] Milton D. Graham, "Psychosocial Research and Braille; The Need for a Program of Research and Development," Research Bulletin, Number 2, American Foundation for the Blind, New York, December 1962, pp. 96-99.

[2/] Berthold Lowenfeld, Braille and Talking Book Reading; A Comparative Study, American Foundation for the Blind, New York, 1945, p. 45.

> "The study has shown that in spite of the faster rate for Talking Book narrative reading results in comprehension that is equally as good as that by Braille reading. Only for informational textbook material is comprehension by Braille reading superior, particularly for pupils of lower intelligence. It seems therefore advisable to have informational material for which the fullest comprehension is essential read in Braille. In fields where volume of reading is more important the Talking Book has the decisive advantage of rate.

Brigham[1/] recorded that scores on the paragraph tests of the Scholastic Aptitude Test average about five points higher for those who took the tests in Braille as opposed to those who used the Talking Book form of the test.

Braille, therefore, would seem to be the most appropriate medium used in instructing school children.

Technical advancements in the rapid reproduction of Braille hold promise for those who wish to see a greater availability of Braille than is now possible. Of particular interest is the "High Speed Braillewriter" being developed at the Massachusetts Institute of Technology in Cambridge, Massachusetts, and the work being done by Dr. John K. Dupress, Director of the Sensory Aids Evaluation and Development Center, and his colleagues at that institution.

[1/] Carl C. Brigham, "Scholastic Aptitude Test for the Blind," School and Society, June, 1940, 51: 91-96.

The mechanics of Braille-reading.-- In comparing the reading of sighted and blind children, Blend says, "the final results are the same--the mechanics only differ,"[1] and then goes on to state:

> "After teaching both seeing and blind children we are definitely convinced that most of the problems encountered in teaching reading are those of degree rather of kind, and psychological rather than physical. While Braille is necessarily a slower medium, the sense of touch is but another entrance to the mind."[2]

There is, however, little doubt that the visual and tactual systems of reading differ in degree of physical facility. Braille, at best, is a far more awkward and complicated mode of gathering and translating stimuli.

Burklen[3] measures the area on the ball of the finger used for touch-reading as stretching from the middle of the "touch rosette" to the arch under the finger nail. The touch span of the middle finger is greater than that of the index finger, but the extra curving of the former tends to equalize the efficiency of the two fingers. The oval-shaped touch span is affected by the individual development

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[1] Francis Blend, "The Blind Child and His Reading," Claremont College Reading Conference Eleventh Yearbook, Claremont College, Claremont, California, 1946, p. 91.

[2] Ibid., p. 97.

[3] Karl Burklen, Touch Reading of the Blind (translated by Frieda K. Merry), American Foundation for the Blind, New York, 1932, p. 10.

of the person reading, and contracts as the fingers become more vertical. The touch spans of readers eleven to nineteen years of age can have a length of from 6 to 18 millimeters and a width of 6 to 12 millimeters; this means that some readers cannot have an adequate touch span, if the character should exceed 6 millimeters. In a description of the Braille format in use at the time of his writing, Burklen describes a character as being 7 millimeters long.[1/] This measurement is not in standard use today. Heller is credited by Burklen[2/] with the introduction of the terms "synthetic" and "analytic" touch into the literature. The former applies to a general grasp of the stimulus, while the latter refers to a more detailed examination of the stimulus for the purpose of correction or deeper investigation. The right index finger is used for "synthetic" touch and the left index finger is used as the controlling finger to keep the line or, in some instances, for the "analysis" of perplexing stimuli. Heller[3/] gives this description of the reading act:

> "In learning to read, the right hand usually is of greater importance. This hand carries out the

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1/Ibid., p. 9.

2/Touch Reading for the Blind, op. cit., p. 13.

3/Theodor Heller, Studien zur Blindenpsychologie, W. Engleman, Leipsig, 1904, p.

[illegible]

[illegible]

[illegible]

[illegible]

> characteristic reading movement, while the left hand takes over the task of locating the lines and of checking the accuracy of the initial points for the movement of the right hand. The movements in reading at first involve the whole arm. As soon as speed is attained, however, these movements are restricted to the forearm. Thus the forearm describes a circular movement, with the firmly held elbow as the fulcrum, the radius of which is equal to the line connecting the point at which the elbow is placed with the beginning and ending of the braille line. The horizontal projection of this circular movement is caused by the changing position of the reading finger which curves slightly more toward the middle of the line and straightens slightly toward the end of the line. The pressure of the under arm in reading obviously has the effect of supporting the reading finger completely so that it can give definite regulated pressure. The fingers that are not used in reading also act as a support, serving as the vehicle upon which the hand moves along. If a blind person has learned to read well, his left hand also shares in the reading process. However, this hand reads neither so rapidly nor so evenly as does the right. In this connection it is often observed that the arm changes its position by fits and starts. Because of the greater difficulties which naturally interfere with its movement, the left hand generally follows a slow analytical movement, while the right hand glides quickly over the line and supplies only a fleeting general concept of the individual character.
>
> And....As a rule, analytic touch is discontinued by practiced Braille readers. Only when compelled to spell out the letters because of unfamiliar words, well-worn characters or poor embossing, do they resort to analytical touch movements with their right hand."

Fertsch[1] photographed the reading performance of Braille readers and reported several significant findings. Among these were: that good readers tend to use their

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[1] Pauline Fertsch, "An Analysis of Braille Reading," *Outlook for the Blind*, 1946, 40: 128-131.

hands independently, i.e., the left hand reads the first part of the line and the right hand meets it to finish the line; that return sweeps from the end of a line to the beginning of the next accounts for six to seven per cent of the reading time; that of the two methods of finding the new line the independent use of hands was superior to retracing the line read and dropping to the next; that poor readers tend to make more regressive and more circling (vertical rather than horizontal) movements; and that reading habits tend to become established by the time the pupil reaches the third grade.

Maxfield[1/] gives basic information on factors affecting Braille reading including: the need for a relaxed body, the use of slight pressure to obtain the maximum amount of stimulation to touch, and the formation of an acute angle with the page when finger-reading. She also suggests methods of developing the use of both hands in reading, and reviews the Uniform Type Committees reports on the mechanics of Braille-reading.

The quantity of Braille-reading deserves special attention. Investigations by Hayes[2/] at the Pennsylvania

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1/Kathryn E. Maxfield, The Blind Child and His Reading, American Foundation for the Blind, New York, 1928, pp. 36-50.

2/Samuel P. Hayes, "Practical Hints for Testers," Teacher's Forum for Instructors of Blind Children, 1939, p. 90.

Institution for the Instruction of the Blind in 1918 convinced him that blind children can read only about one-third as fast as seeing children. The time allowance of 2.5, the amount of time given to sighted students, was determined on the basis of Grade One and One-Half Braille. This ratio still is used today, even with Grade Two Braille, a more contracted form.

Adapted standardized tests.-- Standardized tests used with sighted children have been adapted in many ways for use with the blind.

Achievement tests are used at times with some changes in administration. The 1963 catalog of the American Printing House for the Blind[1/] lists the following among its publications:

The Diagnostic Reading Test: Survey Section
    Upper and Lower Levels
Gray's Standardized Oral Reading Paragraphs
The Stanford Achievement Tests
    Primary, Elementary, Intermediate and
    Advanced Batteries

Nolan[2/] notes the problem that any test must take into account the cultural factors of a group and the consequent problem of normative group comparisons. Tests currently

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[1/] General Catalog of Braille Publications, American Printing House for the Blind, Louisville, Kentucky, 1963, pp. 32-37.

[2/] Carson Y. Nolan, "Evaluating the Scholastic Ability of Visually Handicapped Children," Exceptional Children, May, 1962, 28: 493-96.

used have not been standardized on a blind population.

Davis and Nolan[1/] found that the use of oral administration rather than a written method of presentation produced higher scores among the lowest grades at each level of the Intermediate and Advanced Stanford Achievement tests.

Tests of word-recognition developed for the sighted will include those letters which are commonly confused or misperceived by inadequate ink-print readers and may not be suitable to estimate Braille proficiency. Popp[2/] lists some of the pairs of letters commonly confused in the Roman alphabet such as, "b - d," "p - q," and "n - u." These letters are so dissimilar in Braille that they would not be combined in a test of tactile discrimination.

Individual intelligence tests have been adapted for use with the blind: the verbal section of the Wechsler scales and an adaptation of the 1937 Stanford-Binet, the Interim Hayes-Binet. Davis[3/] noted that:

1/Carl & Davis and Carson Y. Nolan, "A Comparison of Oral and Written Methods of Administering Achievement Tests," International Journal for the Education of the Blind, March, 1961, 10: 80-81.

2/Helen M. Popp, "Visual Discrimination of Alphabet Letters," The Reading Teacher, January, 1964, 17: 221-225.

3/Carl J. Davis, "The Assessment of the Intelligence of the Visually Handicapped," International Journal for the Blind, December, 1962, p. 49.

> "Hayes' collected data, published and unpublished, indicate that the scores of blind children obtained on the foregoing tests (Wechsler, Verbal scales) through the use of the norms for the seeing are distributed in a form that approximates the distribution of the standardization groups. However, there is some distortion which indicates that approximately 12 per cent fewer blind subjects score within the normal range, three times as many fall in the superior and above ranges. These results have led examiners to place a sufficient degree of confidence in educational situations. However, it should be clearly noted that no standardization data for blind subjects exists for any of these tests."

The development of standardized instruments which would measure the potential of and the problem peculiar to the blind has, as yet, not been undertaken.

Measures of Braille Achievement.-- Three instruments, two in England and one in the United States, have been developed to measure knowledge of Braille.

The Lorimer Braille Recognition Test[1/] consists of twenty-nine horizontal lines of whole-word contractions, words which contain part-word contractions, alphabetically abbreviated words, and short-form words. Each of the 174 items in this test contains one of the 190 Grade II Braille contractions. The test is administered individually and is discontinued after eight consecutive errors; no time limits are employed. Although the test was originally designed

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[1/] John Lorimer, The Lorimer Braille Recognition Test, The College of Teachers of the Blind, The Royal School for the Blind, Westbury-on-Trym, Bristol, England, 1962.

and standardized on children ages 7 through 13, it may also be used with adults who are learning Braille for the first time. Norms are based on a sample of 332 children, ages 7 to 13, attending schools in England and Wales. Scores are given in "Reading Age"; this score is determined by a comparison of the number of correct responses made by the child and his chronological age. The test yields a quick achievement measurement of the student's knowledge of Grade II Braille symbols. Information on the diagnostic use of the test is not given in the manual.

The Tooze Braille Speed Test[1/] consists of 15 horizontal lines of monosyllabic, fully spelled (Grade I Braille), three-letter words which are to be read aloud by the child. The test is administered individually and may be used with beginning Braille-readers. "Reading age" scores are determined by a comparison between the number of items correctly identified and the chronological age of the child. Norms were established on the basis of 135 children between the ages of 7 and 13 enrolled in schools in the British Isles and Eire. The test measures achievement in recognizing Grade I Braille symbols. Information on the diagnostic use of the test is not given in the manual.

[1/] F.H.G. Tooze, The Tooze Braille Speed Test, The College of Teachers of the Blind, The Royal School for the Blind, Westbury-on-Trym, Bristol, England, 1962.

The Colorado Braille Battery, developed by Woodcock and Bourgeault[1] of Colorado State College under a grant from the Office of Education, is an achievement test of the student's knowledge of the Grade II Braille literary code and the Nemeth code for mathematical notation.

The literary section of the battery consists of a pretest for quick information on which level to begin testing, and three overlapping levels of Braille achievement: Beginning, Intermediate and Advanced. Two forms are available for each of the three levels. The Beginning Literary Tests include the following segments of the Braille literary code: letters of the alphabet; punctuation and composition signs; and a word-form test of alphabetically-abbreviated words, upper-cell whole-word and part-word contractions, two-cell whole-word contractions, and short-form words. The Intermediate Literary Tests are made up of: punctuation and composition signs; and word-form tests which measure, in addition to the types of orthography included in the word-form of the Beginning Literary Tests, lower-cell whole- and part-word contractions, and two-cell part-word contractions. The Advanced Literary Tests include those factors tested in the easier levels plus

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[1] Richard W. Woodcock and Stanley E. Bourgeault, Construction and Standardization of a Battery of Braille Skills Tests, Cooperative Research Project No. 1650, Office of Education, U.S. Department of Health, Education and Welfare, Washington, D.C., 1964.

additional items of each category. Parallel forms of the tests often contain the same item.

"Grade score equivalents" are available and are determined on the basis of the number of correct responses made. Norms are based on 2,203 students in grade 1 through 12 in 19 residential schools and 43 public school programs for the blind.

The child is asked to identify an item on a horizontal line with four distractors, each of which represents a particular kind of difficulty: lack of knowledge of Braille rules, misperceptions (omission of dots, addition of dots, reversals) and similarity of meaning. Isolated word elements (for example, upper-cell and lower-cell part words) are presented as standing alone, i.e., not included in larger words. The tests may be administered individually or to groups of students. No information on the diagnostic use of the test is given in the manual.

The Perception of Braille symbols.-- Several studies have been undertaken to establish the relative legibility of Braille characters and the kinds of misperceptions which are peculiar to the different types of characters. These studies varied in their mode of and medium presentation of material, the number and kinds of characters used, and the composition of subjects included in the experiment. The last factor very often brings forth the question:

Legible for whom?

Weiner, in comparing the performance of good and poor readers on tests of tactile perception ability, found:

> "When tests of tactual perception did not make demands of complex perceptual distinctions of a tactile nature, both groups were similar. When tactual perception became more complex and demanded a greater degree of tactile perception activity, wide differences were noted on the complex perceptual tests and favored the good readers, or Group II, in each case."[1]

Between the years 1907 and 1915, The Uniform Type Committee conducted experiments in regard to the legibility of the three touch-reading systems then in vogue: English Braille, American Braille and New York Point, and came to several conclusions in the matter of legibility of the characters of each system. These findings are summarized in the Appendix of the 1913 report and have been reviewed by Rodgers.[2] Vertical, 3-dot high characters as found in English and American Braille, were found to be more legible than horizontal 2-dot high characters with a variable base as found in New York Point. Certain characters were termed "equivocal" in that their confusion or substitution for each other was caused by their similarity in

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[1] L.H. Weiner, "The Performance of Good and Poor Braille Readers on Certain Tests Involving Tactual Perception," International Journal for the Education of the Blind, 1963, p. 76.

[2] Carl Rodgers, op. cit., 7-13.

configuration but change in alignment; characters in the lower part of a cell were often mistaken for the same character in the upper part of a cell because their configurations were the same. Single characters were more often mistaken for characters of similar configuration than were words mistaken for words of a similar configuration. Errors occurred because the subjects missed dots or added dots in a character. Characters with more dots were felt to be more difficult to perceive than those with fewer dots. An order of legibility was established for all three alphabets. Certain characters were mistaken for each other when differences of alignment within a cell or differences in position were not detected. For the most part, the tests were constructed by including separate symbols in basic words; by doing this, the problem of context was reduced. Subjects in the various samples of the several experiments conducted ranged in number from a low of four to a high of seventy-one, and included subjects of all ages in the United States and Great Britain.

Burklen[1] tested thirty students who were proficient in reading and writing Braille by placing the right index finger for one second on a small wooden tablet with nail

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[1] Touch Reading for the Blind, op. cit., pp. 18-22.

heads used to represent the six dots in a Braille cell. The nail-heads were placed six millimeters apart, so that a character might measure six millimeters, upper cell only, or twelve millimeters in length, the full cell. These measurements exceeded the dimensions of the ordinary Braille cell. The following order of legibility (easiest to most difficult) was established by 25,000 readings or 600 readings for each character:

A X G M C U L SH V F B S P I D H CH E N The For Wh
Gh Ow BLE K J OU W TH R T CH O With AR Z Q and Y

These tests were conducted on German students; the meanings attached to these symbols, particularly those symbols which have a different meaning in German, might have been influenced by frequency of usage or familiarity.

Burklen concluded that the number of dots was not as important a factor as the design of the character itself in determining legibility; open characters, those with empty dot-spaces between dots, and characters with simple geometric configurations were easier to read.

In discussing the fifty-one characters of Braille in use at that time, Burklen noted that "eighteen forms because of their number, extension and position of dots (configuration) compose only one-third of the Braille characters.[1] He further concluded that Braille is deficient

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[1] *Touch Reading for the Blind*, *op. cit.*, p. 23.

in its number of characteristic forms.

Ashcroft[1] developed twelve paragraphs into which had been incorporated the 185 symbols used in the pre-1959 version of Grade II Braille. The symbols were thus presented in a realistic form, i.e., full context. These paragraphs were read orally by more than 728 blind children in grades two to six in residential and public schools programs. Errors were categorized according to type of Braille orthography and kind of misperception. Categories of orthography were ranked from easiest to most difficult in the following order: alphabetically abbreviated words, full spelling, upper contractions, lower contractions, combinations of orthography, multiple-cell contractions, and short-form words. Of the 12,108 errors made, 10,933, or 90.3 per cent, clustered in eight categories of misperceptions. In order of descending frequency of occurrence the kinds of misperception made were: missed dots, ending problems, reversals, added dots, association, gross substitutions, up and down alignment and vertical alignment.

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[1] Samuel C. Ashcroft, Errors in Oral Reading of Braille at Elementary Grade Levels, Unpublished Doctoral Dissertation, University of Illinois, Urbana, Illinois, 1960.

The ranking of each of these factors varied from grade to grade. Difficulty of perception was seen as a direct result of the multiplicity of meanings assigned to the same character.

Henderson[1] administered a group word-discrimination test to children in grades one through six at the Tennessee School for the Blind. Two levels, primary and intermediate, were constructed. Subjects were asked to make their selections on 60 lines of five alternatives. Incorrect responses represented specific kinds of misperceptions. Results of this study indicate that the types of misperceptions listed in the alternate items presented the following order of increasing difficulty: vertical alignment errors were more frequent than horizontal alignment errors; reversal errors ranked in second place for both primary and intermediate; final substitutions ranked higher than initial or medial substitutions; dots were added more often than missed by primary-grade children.

Kederis,[1] using a tachistoscopic device, tested eighteen male and eighteen female skilled Braille-readers

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[1] Freda Henderson, Analysis of Errors in Braille Word Recognition, Unpublished Master's Thesis, George Peabody College for Teachers, Nashville, Tennessee, 1961.

[2] Cleves Kederis, The Legibility of Braille Characters, Unpublished Master's Thesis, University of Louisville, Louisville, Kentucky, 1963.

from residential schools in Kentucky, Kansas and Tennessee of fifty-five Braille characters. Subjects were used only if they scored at or above the fourth grade reading level on a Grade II Braille copy of Gray's Oral Reading Paragraphs. The tachistoscopic device presented individual Braille characters and recognition thresholds were recorded for the time needed to correctly identify the symbol presented. Individual characters were then ranked for legibility in terms of time needed for correct identifications. The number of dots was determined as being the most influential characteristic in determining the legibility of the individual characters.

Nolan[1/] quotes two studies conducted at the American Printing House for the Blind in 1964. In a study determining the influence of the number of dots and dot position on the recognition thresholds for Braille words, groups of 15 fast and 15 slow readers were asked to recognize sets of Braille words which differed in the number of dots they contained, the positions of dots within words and the presence of contracted and uncontracted word-forms. Significant effects upon recognition time because of the number and position of the dots were noted, but the

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[1/] Carson Y. Nolan, Annual Report for the Fiscal 1964 of Department of Educational Research, American Printing House for the Blind, Louisville, Kentucky, November, 1964.

"precise effects of these facts were not clear since variation in the factors combined in a complex way."

The second study dealt with the influence of Braille contractions upon recognition thresholds for words. Using a tachistoscopic device, sixty-four Braille words of five characters were used to measure the student's ability to identify words when: (a) the number of contractions within words was varied between one and two, (b) the type of contractions varied between three-dot high and two-dot high contractions, lower-cell contractions, and (c) the contractions were placed in an initial, medial, or final position in a word. Two-cell contractions required longer recognition periods than one-cell contractions. Other variables combined to affect performance in a number of complex ways not described by the author.

Summary

A review of the literature and related research supports the need for the construction of an individual, diagnostic test of perception skills peculiar to Braille:

1. Visual discrimination tests have been used to advantage in testing the reading-readiness of sighted students.
2. Braille is the principal medium employed in the instruction of blind children.

3. Standardized tests now employed with the sighted are unsuitable for use with the blind.
4. No formal diagnostic instrument which measures Braille letter- and word-knowledge skills now exists.
5. Factors present in the correct and incorrect perception of Braille have been isolated and can be analyzed.

Chapter II deals with the construction of a diagnostic test of five levels of Braille letter- and word-knowledge.

CHAPTER II

CONSTRUCTION OF TESTING INSTRUMENT

The purpose of this study was to construct and validate a battery of individual, diagnostic tests to measure the various Grade Two Braille perception abilities. Three functions were included in the testing materials: (1) an objective record of the frequency of Braille misperceptions; (2) a profiled analysis of perception errors according to kinds of Braille orthography and of specific categories of misperceptions; and (3) a measure of performance on a five-level scale of letter- and/or word-knowledge.

Construction of Preliminary Testing Materials

It was decided that the individual tests of the battery should parallel the five levels of measurement usually employed when testing the letter- and/or word-knowledge of inkprint readers. In order of ascending difficulty these levels are:

Level I	Matching with aid, the ability to match an exposed stimulus symbol (letter or word) to the same symbol in a horizontal line of alternatives which are similar in configuration.

Level II	Matching without aid, the ability to match a stimulus symbol which has been exposed for a short period and then withdrawn to the same symbol in a horizontal line of alternatives which are similar in configuration.
Level III	Recognition, the ability to select from a horizontal line of alternatives which are similar in configuration the same symbol dictated (oral presentation) by the examiner.
Level IV	Identification, the ability to identify an individual symbol (alternatives are not used) exposed (shown in its inkprint form) by the examiner.
Level V	Reproduction, the ability to write (reproduce) a symbol dictated by the examiner.

Levels I, II, and III are termed "objective," since a multiple-choice (and, therefore, "controlled") format is an inherent part of this type of task. Levels IV and V are termed "subjective," in that the student could make any number of subjective evaluations (responses) of the stimulus. The latter group, the subjective group of testing, would be easier to build than the former group; one need only to select representative symbols and to provide for a means of recording the student's response to the test item.

For this reason, it was felt that the initial problem lay in the more difficult task of constructing multiple-choice items for the first three levels of the battery. Several interrelated steps would have to be included in the

process of constructing the objective tests: the categorization of Braille symbols into types of orthography; the order of introduction (preferably from easiest to most difficult) of the categories of Braille orthography and of the individual symbols within each category of orthography; the isolation of specific kinds of perception errors peculiar to each symbol; the construction of alternate items for each symbol which would allow for the possibility of error according to the isolated kinds of misperceptions; and, finally, a means of recording the performance of each student in a manner which would lend itself to analysis. The most economical, yet productive type of format would be a constant goal in the contruction of testing and recording materials.

Categories of Braille Orthography.-- The three Braille instruction manuals of Wise,[1] Krebs,[2] and the Joint Uniform Braille Committee of the A.A.I.B. and the A.A.W.B.[3] were used as references in sorting the various Braille symbols into orthographic categories. The following

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[1] Janet Wise, Touch Reading, the author, New York, 1960.

[2] Bernard M. Krebs, Transcribers' Guide to English Braille, The Jewish Guild for the Blind, New York, New York, 1961.

[3] Joint Uniform Braille Committee, English Braille--American Edition, 1959, American Printing House for the Blind, Louisville, Kentucky, 1960.

thirteen categories were determined for use in this study:

Alphabetically Abbreviated Words: Alphabetically abbreviated words consist of single alphabetic signs which, when standing alone, represent a complete word, e.g., "l" stands for "like." Twenty-three alphabetically abbreviated words exist in Grade II Braille.

Full Spelling: Fully spelled words are written with one Braille character for every print letter, e.g., "dog" is written "d", "o", and "g". Twenty-six symbols, corresponding to the letters of the alphabet, may be used in full spelling. Full spelling embraces the symbols used in alphabetically abbreviated words plus the symbols for "a", "i", and "o".

Upper Contractions: Upper contractions are single symbols with dots in the upper part of the cell (dots 1 and/or 4); these single symbols may represent two or more letters. The category of "upper contractions" is further divided into two subcategories:

Whole-word upper contractions are single symbols which, when standing alone, represent a complete word, e.g., the single symbol which represents "and." Eleven symbols may be classified as "whole-word upper contractions."

Part-word upper contractions are single symbols which, when placed within a word, represent two or more letters, e.g., the symbol which represents "ed." Eighteen symbols may be classified as "part-word upper contractions"; five of these

symbols ("and," "for," "of," "the" and "with") retain their form both as whole-word and part-word upper cell contractions.

Lower Contractions:

Lower contractions are single symbols with dots only in the lower part of the cell (dots 2, 3, 5 and 6); these single symbols may represent two or more letters. The category of lower contractions is further divided into two sub-categories:

Whole-word lower contractions are single symbols which, when standing alone or before a word, represent a complete word, e.g., "enough" and "to." Nine symbols may be classified as whole-word lower contractions.

Part-word lower contractions are single symbols which, when used as part of a longer word, represent two or more letters, e.g., "dis-". Twelve symbols may be classified as part-word lower contractions.

Two-cell Contractions:

Two-cell contractions are symbols which occupy two adjacent cells and which represent complete words or parts of words:

Whole-word, two-cell contractions are two-cell symbols which represent complete words. They are also known as initial-letter contractions. Thirty-three symbols may be classified as whole-word, two-cell contractions. This group may be further subdivided into the following three groups:

a. Those preceded by dot 5, e.g., "father." (Twenty-two in number.)

b. Those preceded by dots 4-5, e.g., "upon." (Five in number.)
c. Those preceded by dots 4, 5 and 6, e.g., "many." (Six in number.)

Part-word, two-cell contractions are two-cell symbols which represent three or more letters. They are also known as "final-letter contractions." This group may be further subdivided into the following three groups:

a. Those preceded by dots 4-6, e.g., "-less." (Five in number.)
b. Those preceded by dots 5-6, e.g., "-tion." (Seven in number.)
c. Those preceded by dot 6, e.g., "-ally." (Two in number.)

Abbreviated Word Forms: Abbreviated word forms are symbols which occupy two to five adjacent cells and which stand as abbreviated forms of complete words, e.g., "fr" for "friend." Seventy-six symbols may be classified in this category.

A listing of symbols, according to category of orthography, is given in Table 2.

Although other groupings within or including the above categories were possible (for example, sub-dividing the short-form words into two- to five-cell contractions), it was assumed that these groupings would be isolated in the final analysis of items, if it seemed to be profitable.

Table 2. Symbols According to Categories of Orthography

Full Spelling (The Alphabet)	Alphabetically Abbreviated Word	Upper Cell Contractions Whole Words	Lower Cell Contractions Whole Words
A			
B	BUT	*AND	BE
C	CAN	CHILD	BY
D	DO	*FOR	ENOUGH
E	EVERY	*OF	HIS
F	FROM	OUT	IN
G	GO	SHALL	(INTO)
H	HAVE	STILL	TO
I		*THE	WAS
J	JUST	THIS	WERE
K	KNOWLEDGE	WHICH	
L	LIKE	*WITH	
M	MORE		
N	NOT	Part Words	Part Words
O		AR	
P	PEOPLE	BLE	BB
Q	QUITE	CH	BE
R	RATHER	ED	CC
S	SO	ER	COM
T	THAT	GH	CON
U	US	ING	DD
V	VERY	OU	DIS
W	WILL	OW	EA
X	IT	SH	EN
Y	YOU	ST	FF
Z	AS	TH	GG
		WH	IN
		*AND	
		*FOR	
		*OF	
		*THE	
		*WITH	

*"AND," "FOR," "OF," "THE" and "WITH" may be used both as whole and part words.

(continued on next page)

Table 2. (continued)

Two Cell Contractions
Whole Words
(also known as initial-letter contractions)

Preceded by dot 5

D = DAY
E = EVER
F = FATHER
H = HERE
K = KNOW
L = LORD
M = MOTHER
N = NAME
O = ONE
P = PART
Q = QUESTION
R = RIGHT
S = SOME
T = TIME
U = UNDER
W = WORD
Y = YOUNG
THE = THERE
CH = CHARACTER
TH = THROUGH
WH = WHERE
OU = OUGHT

Preceded by dots 4-5

U = UPON
W = WORD
THE = THESE
TH = THOSE
WH = WHOSE

Preceded by dots 4-5-6

C = CANNOT
H = HAD
M = MANY
S = SPIRIT
W = WORLD

Two Cell Contractions
Part Words
(also known as final-letter contractions)

Preceded by dots 4-6

D = OUND
E = ANCE
N = SION
S = LESS
T = OUNT

Preceded by dots 5-6

E = ENCE
G = ONG
L = FUL
N = TION
S = NESS
T = MENT
Y = ITY

Preceded by dot 6

N = ATION
Y = ALLY

(concluded on next page)

Table 2. (concluded)

Short Form Words

AB	ABOUT	H(ER)F	HERSELF
ABV	ABOVE	HM	HIM
AC	ACCORDING	HMF	HIMSELF
ACR	ACROSS	IMM	IMMEDIATE
AF	AFTER	XS	ITS
AFN	AFTERNOON	XF	ITSELF
AFW	AFTERWARD	LR	LETTER
AG	AGAIN	LL	LITTLE
AG(ST)	AGAINST	M(CH)	MUCH
AL	ALSO	M(ST)	MUST
ALM	ALMOST	MYF	MYSELF
ALR	ALREADY	NEC	NECESSARY
AL(TH)	ALTHOUGH	NEI	NEITHER
ALT	ALTOGETHER	O'C	O'CLOCK
ALW	ALWAYS	(5 O)E	ONESELF
(BE)C	BECAUSE	(OU)RVS	OURSELVES
(BE)F	BEFORE	PD	PAID
(BE)H	BEHIND	P(ER)CV	PERCEIVE
(BE)L	BELOW	P(ER)CVG	PERCEIVING
(BE)N	BENEATH	P(ER)H	PERHAPS
(BE)S	BESIDE	QK	QUICK
(BE)T	BETWEEN	RCV	RECEIVE
(BE)Y	BEYOND	RCVG	RECEIVING
BL	BLIND	RJC	REJOICE
BRL	BRAILLE	RJCG	REJOICING
(CH)N	CHILDREN	SD	SAID
(CON)CV	CONCEIVE	(SH)D	SHOULD
(CON)CVG	CONCEIVING	S(CH)	SUCH
CD	COULD	(THE)MVS	THEMSELVES
DCV	DECEIVE	(TH)YF	THYSELF
DCVG	DECEIVING	TD	TODAY
DCL	DECLARE	TGR	TOGETHER
DCLG	DECLARING	TM	TOMORROW
EI	EITHER	TN	TONIGHT
F(ST)	FIRST	WD	WOULD
FR	FRIEND	YR	YOUR
GD	GOOD	YRF	YOURSELF
GRT	GREAT	YRVS	YOURSELVES

The foregoing outline of thirteen orthographic categories departs from that of Ashcroft[1] in two ways. First, the categories of upper-cell, lower-cell and multiple-cell contractions have been sub-divided (expanded) into their whole-word and part-word elements. Secondly, the category of "combinations of orthography" (the mixture of two or more kinds of orthography in a word) was not used, so that only one factor (a single category of orthography) would be in question at a time.

Establishing order of introduction.-- Items should be introduced in order of ascending difficulty, so that the possibility of premature frustration would be minimized. The order for the presentation of categories of orthography is the same as that established by Ashcroft,[2] with the exception that "combinations of orthography" is not included.

Individual symbols within each category were graded through the adaptation of material in two sources. Single characters (alphabetically abbreviated words, full spelling, upper-cell contractions, and lower-cell contractions) were ranked according to the table of recognition-value thresholds given by Kederis.[3] Symbols in the remaining

[1] Errors in Oral Reading, op. cit., pp. 34, 35.

[2] Ibid., pp. 36, 37.

[3] The Legibility of Braille Characters, op. cit., p. 16.

categories (two-cell contractions and short-form words) were ranked, for the most part, in the order suggested by Ashcroft.[1] Since the latter list was compiled before the 1959 revisions in the Braille code were put into effect, the new short form words ("afternoon," "friend," and "first"), the altered forms of earlier short-form words ("today," "tonight," and "tomorrow"), and the new two-cell contraction ("question") were not included. These terms, along with a few words omitted from the study (e.g., "work"), were arbitrarily assigned positions.

The isolation of kinds of possible misperceptions.--Most of the studies which have dealt with the problem of kinds of perception errors have isolated certain categories of misperceptions by analyzing the performance of Braille-readers. Some lists of misperception categories are broader or more detailed than others. In constructing a test for the purpose of measuring one's ability to discriminate among several types of errors, it would seem to be advisable to include as many kinds of potential errors as possible. In order to establish the theoretical types of misperceptions, symbols were considered individually.

Individual symbols were mounted on translucent sheets of paper. Each symbol was "transformed" into as many

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[1] Errors in Oral Reading, op. cit., pp. 109-113.

different symbols as possible: by adding or subtracting dots; by rotating the entire symbol on a horizontal, vertical or horizontal-and-vertical axis; and by moving both the single dots within each symbol and the entire symbol itself into new forms of horizontal and vertical alignment within the cell. The results of this investigation are given in Table 3.

The seven types of misperception errors are defined as follows:

Missed dot errors occur when a character of similar configuration but with one or more extra dots is mistaken for the stimulus character, e.g., ⠯ "and" is mistaken for ⠏ "p" --- dot 6 is "missed" by the student.

Added dot errors occur when a character of similar configuration but with one or more less dots is mistaken for the stimulus character, e.g., ⠍ "m" is mistaken for ⠏ "p". --- dot 2 is "added" by the student.

Horizontal Alignment errors occur when a character of similar configuration but with one or more of its dots in a different right or left portion of the cell is mistaken for the stimulus character, e.g., ⠫ "ed" is mistaken for ⠏ "p" --- dot 6 is perceived as dot 3, its horizontal partner.

Horizontal reversal errors occur when a character of the same configuration but which represents the horizontal (right-to-left or left-to-right) reversal ("mirror image" of the stimulus character is mistaken for the stimulus character, e.g. ⠹ "th" is mistaken for ⠏ "p".

Vertical alignment errors occur when a character of similar configuration but with one or more dots in different upper or lower portions of the cell

Table 3. Theoretical Perception Errors of Grade II Braille Symbols

		Full Spelling					
Symbol	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
a	b, k, c, e, ch				ea	apostrophe	capital sign
b	l, f, h, gh	a, ea	i, e	4-5	k	be (bb)*	5-6
c	f, m, d, sh	a			e, i, con, com	com (cc)	
d	g, n, th	4-5, e, c	f	f	j, sh, dd (dis)		
e	h, o, d	5, a	4-5, b	i	con, ch, c, en	in	
f	p, g, ed	i, c, b	d	d	m, h, ff (to)	dis (dd)	by
g	q, er	j, d, h, f			n, ed, x	gg	
h	r, g, ou	con- (cc), e, b	j	j	o, gh, f	to (ff)	dis (dis)
i	f, s, j, ow	ea	4-5, b	e	c, st, con, in	en	
j	g, t, w	4-5, con- (cc), i	h	h	by, d, ar, ow	dis (dd)	to (ff)
k	l, m, o, u	apostrophe, a	st, ch	4-6	be- (bb), b		
l	p, r, v	be (bb), k, b	s, o, gh	4-5-6			
m	p, n, x	st, c, k	sh	sh	s, o, f, to (ff)	u	ing

* The symbols in parentheses represent another meaning of the symbol

(continued on the next page)

Table 3. (continued)

	Full Spelling						
Symbol	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
n	q, y	ar, d, o, m	th, p	ed	t, x, g	z	the
o	r, n, z	in, e, k	ar, wh, l	ow	h, to (ff), u, m		
p	q, and	s, m, r, l	n, ed	th	r	v	#sign (-ble)
q	for	t, n, g, r, p	er	er	and	of	with
r	q, of	to (ff), o, h, l	t, ou	w	p, v		
s	p, t, the	st, i, be (bb)	ar, ow, l	wh	m, to (ff)	gh	ar
t	q, with	ar, j, to (ff), s	w, r	ou	n, the	ou	
u	v, x, z	com, ch, k	ing	ing	gh, o, h	m	sh
v	and, of	u, gh, l	the, z	#sign (-ble)	r	p	th
w	er, with	4-5-6, dis (dd), ow, j	ou, t	r	th, #sign (-ble)		
x	and, y	ing, sh, u, m			the, ed, z, n, g		
y	for	-ble (#sign), th, z, x, n	and	and	with, er		
z	of, and	by, wh, u, o	#sign (-ble), v	the	x, ou	n	ed

(continued on the next page)

Table 3. (continued)

	Alphabetically Abbreviated Words						
	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
but	like, from, have	a	i, every		knowledge	be	5-6
can	from, more, do, shall	a			every, i		
do	go, not, this	every, can	from	from	just, shall	was	his
every	have, o, do, which	a	but	i	can, child, enough	in	
from	people, go	i, can, but	do	do	more, have	his	was
go	quite, or	just, do, have, from			not, it, were		
have	rather, go, out	every, but	just	just	from, his		
just	go, that, will	i	have	have	do		
knowledge	like, more, o, us	a	still, child		but, be		
like	people, rather, very	knowledge, but, be	so, o				
more	people, not, it	still, can, knowledge	shall	shall	so, from	us	
not	quite, you	do, o, more	this, people		that, go, it	as	the
people	quite, and	so, more, from, like	not	this	rather	very	
quite	for	that, not, go, rather, people			and	of	with

(continued on the next page)

Table 3. (continued)

	Alphabetically Abbreviated Words						
	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
rather	quite, of	o, have, like	that, out	will	people, very		
so	people, that, the	still, i, be	like	which	more		
that	quite, with	just, so	will, rather	out	not, the	out	
us	very, it, as	child, knowledge			his, have	more	shall
very	and, of	his, us, like	the, as		rather	people	this
will	with, er	just	out, that	rather	this		rather
it	and, you	shall, us, more			the, as, ed, not, were		
you	for	this, as, it, not	and	and	with		and
as	of, and	which, us, o	very	the	it, were, out	not	ed

(continued on the next page)

Table 3. (continued)

	Upper-cell Whole-words						
Whole Words	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
*and	for	the, it (x), ed, very (v), people (p)	you (y)	you (y)	of, quite (q)		you (y)
child	us, shall, which	a, capital sign	knowledge	still	enough, every	still	
*for		with, you (y), er, of, and, quite (q)					
*of	for	were (gg), as, z, out (ou), very (v), rather (r)	with	with	and	quite (q)	(er)
out	of	which, have	will (w), rather (r)	that	as	that	
shall	it, this	child, can	more	more	which, do		us
still	more, so		knowledge	child	i, in	child	
*the	and, with	his, so (s), ing, ow	//sign (-ble), very (v)	as (z)	it (x), were (gg), that (t)	ed	not (n)

* Also part-word signs

(continued on the next page)

Table 3. (continued)

Upper-cell Whole-words

Whole Words	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
this	you	which, shall, do	not	people	will		very (v)
which	out, as, this	child, every	o	so	shall		gh
*with	for	#sign (-ble), will (w), were (gg), the, that (t)	of	of	you (y)	er	quite (q)

(continued on the next page)

Table 3. (continued)

	Upper-cell Part-words						
Part Words	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
ar	n, t, -ble	4-5, in, st	4-5-6, o, s	gh	j, -ing	wh	s
-ble	y, with	4-5-6, by-, ing, ar	z, the	v	w	th	p
ch	gh, u, sh, wh	capital sign, a	4-6, k	st	en, e	st	
ed	and, er	ow, sh, gh, f	th, p	n	x, ou, g	the	z
er	for	w, th, ou, ed, g	q	q	y	with	of
gh	v, ed, ou	en, ch, b	ow, wh, l	ar	u, h	s	wh
ing	x, the, -ble	4-6, com-, st	u	u	by-, ar, ow, j	sh	m
ou	of, er	dis (dd), wh, gh, h	w, r	t	z, ed	t	
ow	ed, the, w	4-6, en, i	gh, 4-5-6, s	o	sh, ing, dd (dis), j		o
sh	ed, x, th	4-6, ch, c	m	m	ow, wh, d	ing	u
st	m, s, ar, ing		4-6, k	ch	i, in	ch	
th	er, y	4-5-6, wh, sh, d	ed, n	p	w	#sign (-ble)	v
wh	ou, z, th	5-6, ch, e	4-5-6, gh, o	s	sh, dd (dis)	ar	gh

(continued on the next page)

Table 3. (continued)

Lower-cell Whole-words							
Whole Words	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
be	like, so, his		in, enough		but, knowledge		
*by	z, #sign (-ble)	5-6, com, in			just, dis, ing	d	f, to
enough	his		be	in	child	i	every
his	very, the, were	enough, be	was	was	us, have	from	do
in	o, was		be	enough	still, i	every	i
*to	r, t	in, con-, be-	dis-	dis-	f, o, s	h	j
was	as, were	in	his	his	just	do	from
were	of, with	was, his			go, as, the, it		
*into	(See individual "in" and "to" signs)						

* "by", "to" and "into" must be attached (precede) another word, in order to used the contracted form.

(continued on the next page)

Table 3. (continued)

			Lower-cell Part-words				
Part Words	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
bb (be-)	l, s, to (ff)	ea	in, en	5-6	k, b		4-5
cc	h, ff, j, dd	5, ea			c, e, i, en, in, com		
com	u, ing, by	capital sign			c, en, in, con		
con	h, to, j, dis-	5			c, en, in, e, i, com		
dd	ou, gg, w	5-6, en, cc	ff	ff	d, wh, ow	j	h
dis	ou, w	5-6, en, con	to	to	d, wh, ow	j	h
ea	b, bb, i, cc, en		5	5	a		6
en	gh, ow, dis- (dd)	capital sign, ea	5-6, be (bb)	in	e, ch, cc (con), com	i	
ff	r, t, gg	in, cc, bb	dd (dis)	dd (dis)	f, o, s	h	j
gg	of, with	dd, ff			g, z, the		
in	o, ff, ar, by	5	5-6, be (bb)	en	i, cc (con), st, com	e	

(concluded on the next page)

Table 3. (concluded)

Two-cell Contraction Prefixes

	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversals	Vertical Alignment	Vertical Reversals	Diagonal Reversals
Dot 5	e, con, in, 4-5, 5-6		ea	ea	capital sign		a, 3
Dot 4-5	d, j, ar, 4-5-6	5	e, i	b	4-6	5-6	be-
Dots 4-5-6	th, w, #sign (-ble)	5-6, 4-6, 4-5	wh, ow, ar	1			
Dots 4-6	sh, ow, ing, 4-5-6	capital sign	st, ch	k	4-5, 5-6		
Dots 5-6	wh, dis (dd), by, 4-5-6	5, capital sign	en, in	be-	4-6	4-5	b
Dot 6	ch, en, com, 4-6, 5-6			3	5		a, ea

or when a character with the same configuration but which has moved intact to a different upper or lower position in the cell is mistaken for the stimulus character. In the first instance (dot alignment) ⠗ "r" might be perceived as ⠏ "p". In the second case (the change in alignment of an entire character), ⠑ "e" might be mistaken for ⠢ "en".

Vertical Reversal errors occur when a character of the same configuration but which represents the vertical (upside-down or downside-up) reversal ("mirror image") is mistaken for the stimulus character, e.g., ⠧ "v" is mistaken for ⠏ "p".

Diagonal reversal errors occur when a character of the same configuration but which is both the horizontal and vertical reversal of the stimulus character is mistaken for the stimulus character, e.g., ⠼ "ble" is mistaken for ⠏ "p".

The same distinction (single dot as opposed to whole character) made within vertical alignment problems cannot be made with the category of horizontal alignment. In the case of the latter, the change in position of an entire character from right to left (or vice-versa) can just as easily be classified as a "horizontal reversal" problem. Vertical alignment errors, since they can range over three dots (the height of a Braille cell) are more diversified in their possibility of arrangement. Horizontal alignment problems are restricted to a right-or-left, either-or situation. In this study, Horizontal alignment errors involve a change in position from one side of the cell to the other (e.g., dots 1 and 3 are mistaken for dots 4 and 6) will be classified as horizontal reversal problems.

The following limitations were present in this investigation: first, the missed dot and added dot errors were calculated on the basis of one dot being missed or added, since this is the more likely kind of error to be made and the possibilities of two-or-more dot errors would be almost endless; second, punctuation signs and composition signs were deleted as outlined in the definition of Grade II Braille used in this study; third, the sign for "into" was not included, since "in" and "to" had already been explored separately; and, finally, it was felt unnecessary to include the "stem" symbols in two-cell contractions, since they had already been covered, but to deal, instead, with the "prefixes" (dots 5, 4-5, 4-6, 5-6, and 4-5-6) as separate entities.

The Braille code itself imposes a further limitation on the incidence of error possibilities. In many instances, a letter of the alphabet can be "distorted" into a category of error which might occur in the context of full spelling, but which cannot occur when the single letter is used to represent an alphabetically-abbreviated word. For example, the sign for "s" in a word might be taken for "ar" if a horizontal-alignment problem should occur. The sign "s", however, when standing alone, means "some," and it is not likely to be mistaken for an "ar" sign which is not used alone. Note was taken of this possibility of error

according to context, when constructing these tables.

Not all error categories are "discreet"; the misperception of a character can, in a few cases, be misinterpreted in two or more ways. For example, if ⠎ "s" is perceived as the sign for ⠣ "gh", either a vertical-reversal error (the "s" is turned upside-down) or a horizontal alignment problem (the dot 2 in "s" is perceived as dot 5) can be taking place. If such a problem was encountered, the error was usually assigned to that type which required the least amount of effort or which fitted the patterning of perception errors made on other items.

Construction of alternate items.-- Alternate items were constructed for each of the Grade II Braille symbols which had already been ranked for introduction according to category of Braille orthography and assumed order of difficulty within each category. The symbols were listed down the left margin of the page. Seven vertical columns paralleled this listing, so that, wherever possible, alternative items representing the seven kinds of perception errors could be inserted. In instances where certain kinds of errors were not peculiar to a particular symbol (e.g., the horizontal-reversal of ⠛ "g" is still ⠛ "g"), alternate items were chosen from other types of errors which had a higher possible

incidence of error (e.g., another missed-dots error was listed in the horizontal-reversal position for the letter "g.") Careful note was taken of these extra possibilities of error, to prevent an imbalance in the analysis of the data.

Since Braille symbols depend heavily upon position and context for meaning, full-spelling and part-word (upper-, lower- and two-cell) symbols needed to be "enclosed" in larger words. Basic words from the suggested lists of Murphy,[1/] Gates,[2/] and Thorndike and Lorge[3/] were used in the construction of alternate items. In some cases, basic words which would use some of the less frequently appearing symbols could not be found on these lists. Common "roots" were used in these situations. For example, "sion" did not appear in a word in the basic lists; the word "mansion" was used here, since it contained the basic word ("root") "man."

In addition to being on one of the basic lists, the test items had to meet other criteria. Not only must the

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1/Helen A. Murphy, "The Spontaneous Speaking Vocabulary of Children in Primary Grades," Journal of Education, Vol. 140, No. 2, December, 1957.

2/Arthur I. Gates, A Reading Vocabulary for the Primary Grades, Bureau of Publications, Teachers College, Columbia University, New York, 1935.

3/Edward L. Thorndike and Irving Lorge, The Teacher's Word Book of 30,000 Words, Bureau of Publications, Teachers College, Columbia University, New York, 1944, Part V, pp. 267-274.

word contain the word-element (symbol) in question, but it also had to retain this element in its Braille form. For example, the symbol for "ea" could not be tested in the word "hear," because the Braille code demands that it be spelled "h-e-(ar sign)." Furthermore, words could not be used which contained elements which had not already been tested. For example, the word "nothing" could be used to test the symbol for "th," because "ing," ranked as being an easier to recognize symbol, had already been tested in an earlier part of the test.

In testing individual letters and contractions within words, only the symbol being tested changed form. Other letters in the word remained constant throughout. For example, in testing the letter "e" in "yes," the "y" and "s" kept their forms, while the "e" was distorted into various types of possible errors: "yes," "yos," "y(ch)s," "y(en)s," etc.

When all alternate items had been constructed, a number was assigned to each column across the page. In this way, the first column on the left which contained the correct symbol was numbered "position 1," the second column from the left which contained the missed dots errors was numbered "position 2," the third column from the left which contained the added dot errors was numbered "position 3," and so on through all seven categories of errors.

The correct response and the seven categories of errors were then randomized (using numbers 1 to 8) according to random-order tables given by Dixon[1/] and placed in new positions on horizontal lines of eight items or choices. The correct symbol (the stimulus symbol) was again recorded to the left of this horizontal line, and a line-number was inserted between the stimulus symbol and the eight alternatives.

For an example please see following page.

The material was then Brailled to form a "master test" for Levels I, II and III. The test consisted of 220 symbols listed vertically in the left margin. A line number, to the right of this stimulus symbol, introduced a line of eight choices, only one of which matched the stimulus symbol in every respect. Each category of Braille orthography (alphabetically abbreviated words, full spelling, etc.) was introduced by a sample item, and was kept as a discreet unit in order to reduce confusion on the part of the child, when following directions. The "master test," therefore, consisted of 220 test (stimulus) symbols, nine categories of Braille introduced by a sample, and 1760 alternate items. Inkprint record forms and the

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[1/] Wilfred J. Dixon and Frank J. Massey, Jr., Introduction to Statistical Analysis, McGraw-Hill Book Co., New York, third edition, 1957, pp. 366-370.

Sample Line of Testing Materials (Not Randomized)

Stimulus Symbol	No. of Line	SYMBOL	Missed Dots	Added Dots	Horizontal Alignment	Horizontal Reversal	Vertical Alignment	Vertical Reversal	Vertical Reversal
⠏ (people)	⠼	⠏ (people)	⠯ (and)	⠍ (more)	⠝ (not)	⠹ (this)	⠗ (rather)	⠧ (very)	⠼ (-ble)

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

manual of directions for the master test may be found in the Appendix; the Brailled test itself may be found in the separate folder which accompanies this volume.

The "master test" was administered to seventeen Braille-reading children in grades three to eight in public schools in the metropolitan Boston area. Analysis of the results of this pilot study led to the following alterations. First, the preponderance of dot-5, two-cell contractions increased the odds in favor of correct guesses. Consequently, dot-5 items were revised so that they could be used as single whole-words and as whole-words incorporated into a larger compound word. Second, two-cell, part-word contractions preceded by dots 4-5, 4-6, 5-6 and 6 were treated as one category, in order to reduce cueing by over-compartmentalization. Third, some choices of words were changed in order to facilitate meaning. For example, "washday," when used to test for the symbol "day," brought forth a good deal of consternation from the members of our younger, modern generation who could not understand the concept. The word "Monday" was used to replace this item. Fourth, more direct use of "letter" and "word," rather than the more ambiguous term "sign," were used, in order to make changes in procedure more evident. Finally, the trial of just the Level III material alone absorbed so much time, that it was decided that the material would

have to be, at least, halved, if every child was to complete the five tests of the final battery.

Construction of Final Testing Materials

Forms testing Levels I, II and III.-- The revised "master" test used in the preliminary study was split into two alternate forms (A and B) by assigning the odd-numbered items to Form A and the even-numbered items to Form B. Exceptions to an odd-even selection procedure were made where symbols used a common "root" character but a different "prefix" character, for example, "work" (dot 5, W) and "word" dots 4-5, W). These symbols were separated, so that one representative from the group could be placed in each of the alternate forms. The sample items which introduced each new type of Braille orthography were retained in both forms. Some categories of orthography contained an even number of items in the "master test," e.g., full-spelling employs the twenty-six letters of the alphabet. When one item to be used as a sample from such a category had been subtracted from the main body, the remaining number of odd items could not be split evenly between the two forms. In such instances, one item from the main body was used in both forms. For example, "s" is used in both From A and Form B, when testing full-spelling.

Using the format of the master testing, Form A and Form B were Brailled into two separate booklets. With some minor changes in presentation the one booklet of each form could be used for all three objective tests, i.e., Level I, Level II and Level III. In using the booklet for Level I (Matching with aid), the student is allowed to return to the sign in the left margin to check his choice. In using the booklet for Level II (Matching without aid), the student is allowed to feel the sign in the left margin only once before it is covered by the examiner. In using the booklet for Level III (Recognition), the sign in the margin is covered throughout the testing and the student used only that part of the line which began with the line number.

Forms testing Level IV and Level V.-- Attention was given now to the two subjective levels of testing. In order to preserve the parallelism developed in the alternate forms of Level I, II and III tests, items from Form A of the objective tests were used in constructing Form A of the Level IV and Level V tests, while items from Form B of the objective tests were used in constructing form B of the Level IV and V tests.

The Level IV test, Identification, required a special format. Items in this test were to be presented singly, so that the student could make his own subjective evaluation

(response) of the individual symbol. Again, it must be remembered that Braille symbols depend upon alignment cues from adjacent cells on a horizontal axis to establish specific meanings; the single items listed vertically in the test books for Levels I, II and III, could not be used for this reason. Single symbols were, instead, Brailled in horizontal lines, each line introduced by a line number. Because context clues, a very important factor in Braille perception, were at their minimal operating level in this type of format, re-arrangement of items was necessary. For example, lower-cell contractions were separated by upper-cell contractions, in order to aid the student in ascertaining alignment. Some additional artificial context clues were added, when testing lower-cell part-word contractions; full-cell ("for") signs were placed after or on either side of the symbol being tested. It was felt that some device, however arbitrary, must be used in instances where symbols have specific meanings only when they precede or are enclosed by other signs.

Level V testing, Reproduction, did not require a Braille format; here the student responded orally or in written form (Braille) to the examiner's questions.

A total battery of ten tests, two alternate forms for each of the five levels of testing, was constructed. These tests included a total number of 1176 stimulus items

and 5,664 alternate items.

Appropriate record sheets were constructed for all five levels of testing. Samples of the Brailled material in inkprint form, forms for recording performance, and the manual of directions are given in the Appendix; copies of the Brailled materials are contained in the separate folder which accompanies this volume.

CHAPTER III

PLAN OF THE STUDY

Two comparable forms, each form comprising approximately one-half of the total number of Grade II Braille symbols, were constructed for the five levels of testing: matching with aid, matching without aid, recognition, identification and reproduction. The development of these instruments has been described in Chapter II. The trial of these materials was then undertaken on a selected sample.

The Sample

Delimitation of sample.-- The 192 subjects included in this study were drawn from the population of Braille-reading students in residential school and public school programs. All students were unable to read inkprint material even with the aid of maximum correcting lenses. In addition, they were free from secondary handicaps which might impede performance: physical defects (deafness, crippling, etc.), mental retardation, and severe emotional disturbances.

Distribution of sample.-- Students from grades two, three, four, and five--48 from each grade or a total of 192 students--served as subjects of this study. The number

of students in each grade was evenly split (halved) according to sex (boy or girl), type of school (residential or public), and type of administration (alpha and beta administration were designated in order to vary the use of the alternate forms.) Residential school subjects (96 in number) were drawn from the Perkins School for the Blind, Watertown, Massachusetts, The Oak Hill School for the Blind, Hartford, Connecticut, and the Maryland School for the Blind, Overlea, Maryland. Public school subjects (96 in number) were drawn from regular school systems in forty-eight cities or towns in the following states: California, Connecticut, Massachusetts, New Jersey, New York, and Ohio.

Table 4 gives the distribution of subjects according to sex, grade in school, type of school program, kind of administration, and location.

Administration of Instruments

Types of administration.-- If alternate forms of the tests with different symbols included were not used when testing on all five levels, it was felt that scores would be affected by practice. For this reason, two types of administration, alpha and beta, were devised to reduce this factor. The order and form to be used under each type of administration is given below:

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Table 4. The Distribution of Subjects Included in the Sample According to Administration (Alpha or Beta), Grade, Sex, Type of School, and Location by State

	Residential School Programs								Public School Programs												Total	
	Conn.		Md.		Mass.		Total		Calif.		Mass.		N.J.		N.Y.		Ohio		Total			
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
Grade 2 Male	2	1	2	2	2	3	6	6	4	1	1	3	1	0	0	0	0	2	6	6	12	12
Female	0	1	3	2	3	3	6	6	2	1	1	1	1	2	1	2	1	0	6	6	12	12
Total	2	2	5	4	5	6	12	12	6	2	2	4	2	2	1	2	1	2	12	12	24	24
Grade 3 Male	1	2	2	2	3	2	6	6	5	2	0	1	0	1	0	1	1	1	6	6	12	12
Female	2	2	2	2	2	2	6	6	3	2	0	0	3	1	0	0	0	3	6	6	12	12
Total	3	4	4	4	5	4	12	12	8	4	0	1	3	2	0	1	1	4	12	12	24	24
Grade 4 Male	2	2	2	2	2	2	6	6	4	3	1	1	1	0	0	2	0	0	6	6	12	12
Female	2	2	2	2	2	2	6	6	3	2	0	0	3	3	0	1	0	0	6	6	12	12
Total	4	4	4	4	4	4	12	12	7	5	1	1	4	3	0	3	0	0	12	12	24	24
Grade 5 Male	2	2	2	2	2	2	6	6	5	4	0	0	1	2	0	0	0	0	6	6	12	12
Female	2	1	2	2	2	3	6	6	5	2	0	0	1	4	0	0	0	0	6	6	12	12
Total	4	3	4	4	4	5	12	12	10	6	0	0	2	6	0	0	0	0	12	12	24	24
Grand Total	13	13	17	16	18	19	48	48	31	17	3	6	11	13	1	6	2	6	48	48	96	96
	26		33		37		96		48		9		24		7		8		96		192	

Alpha administration

Level IV, Identification, Form B
Level II, Matching without aid, Form A
Level III, Recognition, Form B
Level V, Reproduction, Form A
Level I, Matching with aid, Form A

Beta administration

Level IV, Identification, Form A
Level II, Matching without aid, Form B
Level III, Recognition, Form A
Level V, Reproduction, Form B
Level I, Matching without aid, Form B

Level I, II and V could use the same form (items) of the test, since meanings were not called for in Levels I and II (symbols were matched without referring to meaning) and the Braille form was not used in Level V where the meanings of symbols were in question. Levels III and IV, although they used the same "form" (A or B) employed different formats. The factor of practice was further reduced between Levels III and IV and between Levels I, II and V by "staggering" the order of the levels. While the "levels" are not in the order of assumed difficulty, the individual items within each test did hold to the assumed order of difficulty.

Level I, Matching with aid, was not given in its entirety because of time factors. It was assumed that Level I, Matching with aid, would be easier for the

students than Level II, Matching without aid; therefore, only those items missed on Level II were retested with Level I material. In order to validate this assumption, one sub-group at the Perkins School for the Blind received the complete tests for both Levels I and II.

The Level V test, Reproduction, required the student to reproduce the symbol either verbally or on a Braille-writer. The use of dot-numbers when describing symbols is discouraged in some systems. The students were given the option of choosing their own medium of "reproduction" except in one sub-group, students from the public schools of New Jersey, where students made their responses both verbally and by means of a Braille-writer. The results of both methods were noted for analysis.

Trial of the material.-- Twenty-three experienced teachers of the blind administered the tests to children in seven states. These teachers were paid for the administration of the battery in amounts varying upon the distance travelled. The tests were administered in one to five sessions and required from 46 to 333 minutes for completion.

History forms for each student were completed by each administrator. The following factors were included in this questionnaire:

Name
City and State
Chronological age
Sex
Grade in school
Kind of school program attended: residential
  or public
Number of years using Braille
Vision rating
Etiology of eye disease
Age of onset of blindness
Intelligence Quotient as obtained on the
  Hayes Binet or Wechsler Intelligence Scale
  for Children (Verbal only)
Performance on the Stanford or Metropolitan
  Achievement tests of Word Knowledge and
  Paragraph Meaning
Handedness
Type of administration received
Date of completion of form

Additional forms were designed as covers for the test-performance records. These forms required the following information:

Name
School
City and State
Sex
Grade
Name of test administrator
Time required to complete each test
Number of sessions required to complete
  the battery

Samples of these forms are included in the Appendix.

Scoring.-- All testing materials, both inkprint record forms and Brailled materials, were returned to the investigator for scoring. A staff of three clerks and two Braille consultants corrected the tests and ordered the results for analysis. In all instances, scorers returned

to the original Braille when correcting the tests. Although the test administrators had recorded the student's performance during the testing session, it was deemed necessary to return to the original material after a few errors in recording were found.

Using charts which gave the type of error for every one of the eight positions on each line of the tests, the scorers were able to code the student's answer in a manner which lent itself to analysis by a computer. For example, an "0" was marked beside an item where the student gave no response, a "1" was placed beside a correct answer, a "2" was placed beside a response which was a "missed dots" error, a "3" was placed beside a response which was an "added dots" error, and so forth. This process was used in coding responses in the three objective tests: Levels I, II, and III.

Level IV and Level V tests, the subjective tests, were treated in the same manner with two additions. First, the code number "9" was assigned to responses which did not meet the requirements of the seven categories of perception errors used in this study; this category was termed "gross substitution." Secondly, all incorrect responses were listed verbatim beside the item being tested on large sheets of paper. The frequency and type of response made by the student in these subjective tests were noted.

The results of the analysis of the data obtained are given in the next chapter.

[illegible]

[illegible]

CHAPTER IV

ANALYSIS OF DATA

The Diagnostic Perception Test included five levels or modes of presentation of items: Level I, Matching with Aid; Level II, Matching without Aid; Level III, Recognition; Level IV, Identification; and Level V, Reproduction. Two forms, A and B, were designed for use at each level; each form contained an equal number of items. Items within each form were grouped by types of Braille orthography: alphabetically abbreviated words, full spelling, upper-cell whole-words, upper-cell part-words, lower-cell whole-words, lower-cell part-words, two-cell whole-words, two-cell part-words, and short-form words.

The tests were administered to 192 blind children in grades two, three, four and five in residential and public schools. All levels were administered to each child, but only one form was used at each level. The sample was therefore split into two equal groups, each half taking one form of the test at each level. The order of levels and forms used at each level was separated into Alpha and Beta administrations:

Alpha Administration	Beta Administration
Level IV, Form B	Level IV, Form A
Level II, Form A	Level II, Form B
Level III, Form B	Level III, Form A
Level V, Form A	Level V, Form B
Level I, Form A	Level I, Form B

The children in each administration were evenly distributed according to sex, grade, and type of school.

The data concerned with the Diagnostic Perception tests were analyzed to discover:

1. The validity
2. The reliability
3. The suitability of items
4. The relationship between scores on the Diagnostic Test and:

   Chronological age
   Sex
   Grade placement
   Type of school, residential or public
   Intelligence
   Number of years using Braille
   Achievement on Word Meaning and Paragraph Meaning

5. Substudies were done to establish the constancy of difficulty between:

   The complete administrations of Levels I and II
   Oral and written responses to Level V

6. The constancy of difficulty among the five levels of presentation.

Validity.--The method of content validity was used in establishing the validity of the instruments developed in

this study. "Content validity is evaluated by showing how well the content of the test samples the class of situations or subject matter about which conclusions are to be drawn."[1/] Grade II Braille consists of 215 letter, part-word and whole-word symbols; 214 of these symbols have been included in each level of the Diagnostic Perception Test.

Reliability.-- Reliability was established by the use of Hoyt's Analysis of Variance Reliability techniques. Table 5 lists the reliability coefficient for all levels and forms. Coefficients were high and quite comparable.

Suitability of items.-- In order to accept desirable items and to reject items lacking in the ability to discriminate between those with a high score and those with a low score on the Diagnostic Perception Tests, an item analysis was performed on the items in all forms and levels.

The responses of students in grades two and three, and in grades four and five were combined, in order to increase the number of total responses to each item. The forty-eight students in each of the new grade-combination groups were ranked in descending order of highest to lowest total score for all levels and forms. A comparison was then made of the number of correct responses made by the highest twenty-seven per cent, thirteen students, against the number

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[1/] American Psychological Association, Technical Recommendations for Psychological Tests and Diagnostic Techniques, Washington, D.C., 1954, p. 7.

Table 5. Reliability Coefficients of All Forms and Levels

Level and Form	N	r
Level I, Form A	96	.960
Level I, Form B	96	.958
Level II, Form A	96	.960
Level II, Form B	96	.957
Level III, Form A	96	.971
Level III, Form B	96	.973
Level IV, Form A	96	.976
Level IV, Form B	96	.973
Level V, Form A	96	.969
Level V, Form B	96	.979

of correct responses made by the lowest twenty-seven per cent, thirteen students, of the ranked group on the individual items in all forms and levels. The level of significance at which the individual items were able to discriminate between high- and low-scores was determined by a Chi-square Item Analysis technique.

Table 6 shows the item analysis for every item on all forms and levels.

Table 6a. Item Analysis for Levels I, II, III, and V - Form A

	Level I		Level II		Level III		Level V	
Item	Grade: 2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5
EVERY	*		*					
CAN	**		**	*			**	**
BUT							*	
MORE	*		*	*				
GO								
HAVE			*					
LIKE							**	
NOT								
VERY			*					
YOU								
PEOPLE			**				*	
RATHER					*		*	**
E								
A								
C								**
B							*	
M			*					**
B								
J								
X								
S								
F			*	**				
Z			*					
W	**							
T								
Q				**				
STILL								
SMALL	**		*	*	*		**	*
THIS								
AND			*					
OF	**		**		*			
FOR								
ST								
SH	**		*	*				
ING					*			
TH							**	*
CH			*		**		**	
THE								
AND							**	
ED				*			**	**
OF			**	**	*	*		
FOR							**	

**Significant at the .01 level of significance
*Significant at the .05 level of significance

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	Level I		Level II		Level III		Level V	
Item	Grade: 2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5
IN	**	*	*					
ENOUGH					*	*		
HIS					*		*	*
TO	*	**			**			
WAS	**	**		*	**		*	
COM	**		**				*	
IN	**	**	**	**				**
BB		**		*	*			**
CC			*		**			**
FF		*		**	**		*	
DIS			*		**	*	**	
EA		**		**			**	**
MOTHER	**	*		**				*
DAY								
CANNOT	**			**		*	**	**
ONE	**			*				
HAD					**		*	
PART					*			
OUGHT					**	**	*	**
RIGHT	**		**	**	**		**	
UPON	**	*	*	**	**	*	*	
WHERE			**		**		**	**
WORLD			*		*		*	*
THROUGH			*		*		*	**
WORD	*		**	**			**	*
THERE								
UNDER		*	**	**	**			**
THESE	**	**	*	**		*	*	*
KNOW		*		*	**			**
ANCE	*		*				**	
OUND		*	**	**	**			**
FUL	**	**		**	**		*	**
TION	**	*	**	**	**	**		**
ITY					**	*		**
LESS	**	**	*	**	**	**	*	**
OUNT	**	**	*	**	**	**	**	
ATION					**	**	**	
SAID			*					
COULD	*		**					
LITTLE							*	**
MYSELF	**	*		*	**	*		
BRAILLE					**		**	**
BECAUSE					**			
ABOUT			*		*			
YOUR							*	
BEFORE	**	**	**	**	**		**	*
ACROSS	*		**					

**Significant at the .01 level of significance

*Significant at the .05 level of significance

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Table 6e. (concluded)

Item	Level I		Level II		Level III		Level V	
	Grade: 2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5
GOOD	*		**	*			**	*
ITS			**					
AFTER	*		*				*	
AFTERNOON	*				**		*	**
AGAIN							**	
ITSELF	*				**	**	*	
WOULD					*		**	**
BESIDE					**			
PERHAPS					**	*	*	
TODAY			*				*	
ALWAYS			*		*		*	
TOGETHER	**	*	**	**	**			
SHOULD	**	*	**	**	**		**	*
BETWEEN	**	*	*	**	**		**	**
PAID			*		**		**	
EITHER					**	*	**	*
ALREADY	**		**	**	**	*	*	**
TOMORROW					**		**	
ALSO					*	**	**	
NEITHER					**	*		**
DECLARE	*		*			**	**	
RECEIVE						*	**	*
BLIND	**		**	**	**			**
PERCEIVE						**	**	
CONCEIVING	*		*	**		**	*	**
DECEIVING						**	*	**
ACCORDING	*		*			**	**	
REJOICE	*					**	**	**
IMMEDIATE	**	*		**	*	**		**

**Significant at the .01 level of significance
*Significant at the .05 level of significance

Table 6b. Item Analysis for Levels I, II, III, and V - Form B

	Level I		Level II		Level III		Level V	
Item	Grade: 2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5
EVERY	*	*			**	**		*
KNOWLEDGE	*			*	*			*
DO								
US			**				**	**
JUST			*					
IT								
SO	*		*		**			
FROM								
AS			**		*			
WILL								
THAT	*		*		**	*		
QUITE	*	*	**		**	**	**	
E								
I							*	
K					*	**		
D	*						*	
U	**	**			**	*	**	
G								
H								
L	**	*			**	**		
N					*			
V	*				**		*	
Y							*	
P							**	
R								*
S							*	*
STILL			**			*		
CHILD	*	**	**			**	**	*
WHICH			**					
THE								
WITH			**					*
OUT			*					
ST								
CH							**	*
THE					**			
OW	*				*	*	**	
AR		**			*	**	**	
WH							*	
BLE	*	*	**		**	**	*	
WITH	*		**		**		**	**
ER					*		**	*
OU			**		*			

**Significant at the .01 level of significance
*Significant at the .05 level of significance

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Table 6b. (continued)

	Level I		Level II		Level III		Level V	
Item	Grade: 2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5
IN	*	**				**		*
BE			**				**	
WAS	**	**	**			**	**	
WERE			**				*	
BY			**	*				
COM	*	**	**			**	*	*
BE	*	*	**		**	*	*	**
CON	*	**	**		*	**	*	**
EN	*	**				*		
GG			*				*	*
DD			*				*	*
IN	*	**			**	**	**	**
MOTHER	*	*			**		*	
FATHER					*			
SPIRIT	**	*	**	**	**	*	**	*
NAME							**	*
MANY	*		**		**		**	
TIME			*				**	
EVER	**	**	**		**	**	**	
SOME					**		**	
WORK								*
WHOSE	**		*		**		*	
LORD	*	*	**		**	**	*	
THOSE	**		**	*	**		**	
YOUNG	**		**		**	*	*	
HERE			*					
QUESTION	**	*	**		**	**		*
THEIR			**		*		**	*
CHARACTER	**	**	**	**		**	*	**
ANCE			**	**			**	
ENCE	**	**	**	**	**	*	**	*
ONG	**	**	**	*	**	**	**	**
SION	*	**	**	**	**	**	**	**
NESS	**	**	**	**	**	*	**	
MENT			**	**	*		**	**
ALLY	*		**	*	**		**	*
ATION			**	**			**	
SAID							*	
CHILDREN			*				**	
AGAINST	**	*	**					
O'CLOCK			**				*	**
GREAT	**		**		**		*	
MUST			**					
FRIEND			**		*		**	
FIRST			**		*		**	
YOURSELF	*		**		*		**	**
LETTER			**				**	

**Significant at the .01 level of significance
*Significant at the .05 level of significance

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Table 6b. (concluded)

Item	Level I		Level II		Level III		Level V	
	Grade: 2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5	2 & 3	4 & 5
HERSELF	**		**		**		*	
MUCH			**				**	
TODAY			**				**	
ALMOST	**	**	**			**	**	
HIMSELF	*		**		*		*	
QUICK	**		**		*		**	
BEHIND	**	**	**		*		**	
THEMSELVES	*		**		*		**	
ABOVE			**				**	
HIM							*	
TONIGHT			**		*		**	
BELOW	*		**		**		**	*
ALTOGETHER			**	**			*	**
SUCH	**		**		**		**	**
OURSELVES	**		**				**	
YOURSELVES	**		**		**		**	
BENEATH	**	*	**		**	**	**	
NECESSARY			**		*		**	
AFTERWARD			**	*			**	
DECLARING		**		**		*	**	
DECEIVE			**	**	*		**	
ONESELF	**		**		**		**	
REJOICING	**			**	**		*	**
THYSELF			**	**			**	*
PERCEIVING	**	*		**	*	**		**
RECEIVING	**			**	**	**		
ALTHOUGH			**				**	*
BEYOND	**	*	**	**	**	*	**	
CONCEIVE	**	*	**	**	*	*	*	**

**Significant at the .01 level of significance
*Significant at the .05 level of significance

Table 6c. Item Analysis for Level IV - Forms A and B

Form A			Form B		
Item	Grade: 2 & 3	4 & 5	Item	2 & 3	4 & 5
E			E	*	
EVERY		**	EVERY		*
A			I		
C			K		
CAN			KNOWLEDGE		*
B			D		
BUT	*		DO	*	
M			U	*	
MORE			US	*	*
O			G		
J			GO		
JUST	**		H		
X			HAVE	*	
I			L		
S			LIKE		
SO	*		N		
F			NOT		
FROM	*		V		
Z	*		VERY		
AS	**		Y		
W			YOU		
WILL			P		
T			PEOPLE		
THAT	**		R		
Q			RATHER	*	*
QUITE	*	*	S		
ST		*	SO		
STILL	**	*	ST	*	*
IN			STILL	**	**
SH	**	*	IN	**	*
SHALL	**	**	CH		
ING		**	CHILD	**	**
ENOUGH	*		THE		
TH	*		BE		
THIS	*	**	OW		
HIS			AR		
GH	**		WH	*	
THE			WHICH	**	*
AND			WAS	**	*
TO			BLE	*	*
ED	**	*	WITH	*	

**Significant at the .01 level of significance
*Significant at the .05 level of significance

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Table 6c. (continued)

Form A			Form B		
Item	Grade: 2 & 3	4 & 5	Item	2 & 3	4 & 5
WAS	**	**	ER	*	**
OF	**	*	WERE	*	*
FOR			BY	*	
COM	**		OU	*	
BB	*		OUT	**	
CC		**	COM	**	
FF		*	BE	*	
DIS	*	*	CON		*
EA	*		EN	*	
IN	**		GG		
MOTHER			DD	*	
DAY	*		IN	**	
CANNOT			MOTHER		
ONE			FATHER		
HAD			SPIRIT		**
PART	**		NAME	*	
OUGHT	**		MANY		
RIGHT	**		TIME		
UPON	**	*	EVER	*	
WHERE	*		SOME		
WORLD	**		WORK		
THROUGH	**		WHOSE	**	**
WORD	**		LORD	*	*
THERE	**		THOSE	**	*
UNDER	*		YOUNG	**	
THESE	**		HERE		
KNOW			QUESTION	**	
ANCE	**	**	THEIR		
OUND	**	**	CHARACTER		**
FUL	**	**	ANCE		**
TION	**	**	ENCE	*	*
ITY	**	**	ONG	**	
LESS	*	**	SION		**
OUNT	**	**	NESS		**
ATION	**	**	MENT	*	**
SAID			ALLY	**	**
COULD			ATION	**	**
LITTLE			SAID		
MYSELF	**		CHILDREN		
BRAILLE	**		AGAINST	**	
BECAUSE	**		O'CLOCK	**	
ABOUT	*		GREAT	**	
YOUR			MUST		
BEFORE	**		FRIEND		
ACROSS	**		FIRST	**	
GOOD			YOURSELF	**	

**Significant at the .01 level of significance
*Significant at the .05 level of significance

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Table 6c. (concluded)

Form A			Form B		
Item	Grade: 2 & 3	4 & 5	Item	2 & 3	4 & 5
ITS			LETTER		
AFTER	*		HERSELF	**	
AFTERNOON	**		MUCH	**	
AGAIN			TODAY	**	
ITSELF	**		ALMOST	*	
WOULD	*		HIMSELF	**	
BESIDE	**		QUICK	**	
PERHAPS	**		BEHIND	*	
TODAY	**		THEMSELVES	**	
ALWAYS	**		ABOVE	**	
TOGETHER	**		HIM		
SHOULD	**	**	TONIGHT	**	
BETWEEN	**		BELOW	**	
PAID	**	*	ALTOGETHER	*	
EITHER	**		SUCH	**	
ALREADY	**	*	OURSELVES	**	
TOMORROW	**	*	YOURSELVES	**	
ALSO	**		BENEATH	*	
NEITHER	**	**	NECESSARY		
DECLARE	**	**	AFTERWARD	*	
RECEIVE	**	**	DECLARING		
BLIND	**	**	DECEIVE		*
PERCEIVE	**	*	ONESELF		
CONCEIVING		*	REJOICING		*
DECEIVING			THYSELF	*	*
ACCORDING			PERCEIVING		
REJOICE	*		RECEIVING		**
IMMEDIATE			ALTHOUGH	*	**
			BEYOND		**
			CONCEIVE		**

**Significant at the .01 level of significance
*Significant at the .05 level of significance

Items were accepted which discriminated at the level of .01 significance. Table 7 indicates the number of items accepted on all levels and forms.

Table 7. The Number of Items Significant at the .01 Level in All Levels and Forms.

	Form A		Form B	
	Grades 2 & 3	Grades 4 & 5	Grades 2 & 3	Grades 4 & 5
Level I	27	10	29	18
Level II	21	26	66	17
Level III	37	14	37	22
Level IV	52	19	32	16
Level V	33	32	55	16

Grade Placement, Sex, and Type of School.-- The data obtained on the total number of subjects, 192 children, were analyzed to investigate whether any significant relationships existed between the scores obtained on all levels and forms of the Diagnostic Perception Test and the differences within the factors of grade placement, sex, and type of school, i.e., residential or public. A four-way analysis of variance design was used to examine the significance of these relationships.

Table 8 presents the effect of differences in grade placement, sex, and type of school in performance on Forms A and B, Level I, of the Diagnostic Perception Test using analysis of variance techniques.

Table 8. The Effect of Differences in Grade, Sex, and Type of School on Scores Obtained in Forms A and B, Level I.

Source	Sum of Squares	Degrees of Freedom	Mean Square	F
Total	44002.703	191		
Form	148.755	1	148.755	<1
Sex	0.130	1	0.130	<1
School	3.255	1	3.255	<1
Grade	8107.766	3	2702.589	13.338*
Form x Sex	22.006	1	22.006	<1
Form x School	163.172	1	163.172	<1
Form x Grade	33.224	3	11.075	<1
Sex x School	29.297	1	29.297	<1
Sex x Grade	102.432	3	34.144	<1
School x Grade	319.140	3	106.380	<1
Form x Sex x School	756.046	1	756.046	3.731
Form x Sex x Grade	519.807	3	173.269	<1
Form x School x Grade	527.808	3	175.936	<1
Sex x School x Grade	813.600	3	271.200	1.338
Form x Sex x School x Grade	37.765	3	12.588	<1
Residual	32418.500	160	202.616	

*Significant at the .005 level.

No significant relationships were discovered between performance on Level I testing and differences in the variables of form, sex, and type of school nor in the interactions of these variables. An effect on performance on Level I material was noted at the .005 level of significance for differences in the variable of grade placement. Table 9 lists the mean scores for all grades on Level I material.

Table 9. Mean Scores for all Grades on Level I Material

Grade	Mean	N
2	93.646	48
3	100.521	48
4	109.021	48
5	109.250	48

Scores increased with each grade with diminishing increments at the upper grade levels.

Table 10 presents the effect of the differences in grade placement, sex, and type of school on performance on Forms A and B, Level I, of the Diagnostic Perception Test using analysis of variance techniques.

Table 10. The Effect of Differences in Grade, Sex and Type of School of Scores Obtained on Forms A and B, Level II.

Source	Sum of Squares	Degrees of Freedom	Mean Square	F
Total	68489.917	191		
Form	595.021	1	595.021	2.289
Sex	238.521	1	238.521	< 1
School	0.188	1	0.188	< 1
Grade	17888.375	3	5962.792	22.933*
Form x Sex	10.083	1	10.083	< 1
Form x School	120.333	1	120.333	< 1
Form x Grade	60.438	3	20.146	< 1
Sex x School	140.083	1	140.083	< 1
Sex x Grade	158.938	3	52.979	< 1
School x Grade	789.604	3	263.201	1.012
Form x Sex x School	2255.021	1	2255.021	8.673*
Form x Sex x Grade	1890.208	3	630.069	2.423
Form x School x Grade	553.125	3	184.375	< 1
Sex x School x Grade	1528.041	3	509.347	1.959
Form x Sex x School x Grade	661.271	3	220.424	< 1
Residual	41600.667	160	260.004	

*Significant at the .005 level.

The relationship of differences in grade to performance on Level II material was significant at the .005 level. Significant effects were not noted between performance on Level II and the differences in sex, form and type of school as independent variables. Significant interactions of the variables of form with sex and with type of school, however, was at the .005 level of significance. Table 11 lists the mean-scores of all grades on Level II material

Table 11. Mean Scores for all Grades on Level II

Grade	Mean	N
2	75.979	48
3	86.833	48
4	97.958	48
5	100.146	48

Scores increased with all grades with diminishing increments at the upper grade levels.

Table 12 lists the mean-scores of significant interactions of differences in form, sex and type of school.

Table 12. Mean Scores of Interaction of Differences in Form, Sex and School on Level II

Form	Sex	School	Mean	N
A	Male	Residential	88.833	24
A	Male	Public	92.458	24
A	Female	Residential	96.667	24
A	Female	Public	90.000	24
B	Male	Residential	91.042	24
B	Male	Public	84.125	24
B	Female	Residential	84.250	24
B	Female	Public	94.458	24

On Form A, Level II material, male public school students scored higher than male residential school students, while female residential school students scored higher than female public school students. The order was exactly reversed on Form B material.

Table 13 presents the effect of the differences in grade placement, sex, and type of school on performance on Forms A and B, Level III, of the Diagnostic Perception Test using analysis of variance techniques.

Table 13. The Effect of Differences in Grade, Sex and Type of School on Scores Obtained on Forms A and B, Level III.

Source	Sum of Squares	Degrees of Freedom	Mean Square	F
Total	98807.000	191		
Form	204.188	1	204.188	< 1
Sex	667.521	1	667.521	2.019
School	1323.000	1	1323.000	4.002**
Grade	34952.708	3	11650.903	35.244*
Form x Sex	26.999	1	26.999	< 1
Form x School	165.020	1	165.020	< 1
Form x Grade	163.687	3	54.562	< 1
Sex x School	450.187	1	450.187	1.362
Sex x Grade	386.854	3	128.951	< 1
School x Grade	1247.625	3	415.875	1.258
Form x Sex x School	1704.085	1	1704.085	5.155**
Form x Sex x Grade	2167.043	3	722.348	2.185
Form x School x Grade	537.605	3	179.202	< 1
Sex x School x Grade	1559.438	3	519.813	1.572
From x Sex x School x Grade	357.707	3	119.236	< 1
Residual	59893.333	160	330.583	

*Significant at the .005 level.

**Significant at the .05 level.

Significant effects were observed at the .005 level of significance for differences in grade placement and at the .05 level of significance for differences in type of school. Differences in sex and form did not seem to affect significantly performance on Level III material. The interaction of differences in form, sex, and type of school was observed to be significant at the .05 level of significance; other interactions of differences in variables did not seem to affect test performance significantly.

Table 14 lists the mean-scores of the differences within the variables of grade and type of school on Level III material.

Table 14. Mean Scores of Grades and Types of School on Level III

Significant Variables	Mean	N
Type of school:		
Residential	90.750	96
Public	85.500	96
Grade in school:		
2	60.083	48
3	83.729	48
4	98.271	48
5	109.417	48

Residential school students obtained a higher mean-score than did public school students on Level III material. The mean scores for each grade was higher than that of the grade below it, with the smallest increment appearing between grades three and four.

Table 15 lists the mean-scores of the interactions of differences in form, sex and school on Level III.

Table 15. Mean Scores of the Interaction of Differences in Sex, Form and School.

Form	Sex	School	Mean	N
A	Male	Residential	86.958	24
A	Male	Public	82.750	24
A	Female	Residential	94.333	24
A	Female	Public	84.333	24
B	Male	Residential	93.895	24
B	Male	Public	81,458	24
B	Female	Residential	87.833	24
B	Female	Public	93.458	24

Students of both sexes in residential schools obtained higher mean scores than students of both sexes in public schools with the exception of scores on Form B where female public school students obtained a higher mean score than female residential school students.

Table 16 presents the effect of differences in grade placement, sex, and type of school on performance on Forms A and B, Level III, of the Diagnostic Perception Test, using analysis of variance techniques.

Table 16. The Effect of Differences in Grade, Sex and Type of School on Scores Obtained on Forms A and B, Level IV

Source	Sum of Squares	Degree of Freedom	Mean Square	F
Total	94101.745	191		
Form	152.297	1	152.297	<1
Sex	530.005	1	530.005	2.134
School	10048.547	1	10048.547	40.455*
Grade	37474.183	3	12491.394	50.290*
Form x Sex	64.172	1	64.172	<1
Form x School	18.130	1	18.130	<1
Form x Grade	581.890	3	193.963	<1
Sex x School	748.131	1	748.131	3.012
Sex x Grade	513.849	3	171.283	<1
School x Grade	1291.307	3	430.436	1.733
Form x Sex x School	556.921	1	556.921	2.242
Form x Sex x Grade	905.099	3	301.700	1.215
Form x School x Grade	87.974	3	29.325	<1
Sex x School x Grade	1043.473	3	342.824	1.400
Form x Sex x School x Grade	343.600	3	114.533	<1
Residual	39742.167	160	248.389	

*Significant at the .005 level.

Significant relationships were observed at the .005 level of significance between differences in grade and type of school on Level IV material. No significant effect was observed for differences in the sex variable nor the interaction of the variables.

Table 17 lists the mean scores for the differences in type of school and grade on Level IV material.

Table 17. The Mean-scores of Types of Schools and All Grades on Level IV

Significant Variables	Mean	N
Type of School:		
Residential	94.771	96
Public	80.302	96
Grade:		
2	69.542	48
3	81.625	48
4	93.208	48
5	102.771	48

Residential school students obtained a higher mean score than did public school students on Level IV material. Mean-scores became higher at each grade level with the smallest increment occurring between grades four and five.

Table 18 presents the effect of differences in grade placement, sex, and type of school on performance of Forms A and B, Level V.

Table 18. The Effect of Differences in Grade, Sex, and Type of School on Scores Obtained on Forms A and B, Level V

Source	Sum of Squares	Degrees of Freedom	Mean Square	F
Total	84056.995	191		
Form	536.672	1	536.672	2.350
Sex	1165.255	1	1165.255	5.102**
School	7688.672	1	7688.672	33.662*
Grade	27578.974	3	9192.991	40.249*
Form x Sex	89.381	1	89.381	1
Form x School	97.755	1	97.755	1
Form x Grade	74.057	3	24.686	1
Sex x School	1435.547	1	1435.547	6.285**
Sex x Grade	450.308	3	150.103	1
School x Grade	5097.057	3	1699.019	7.439*
Form x Sex x School	453.255	1	453.255	1.984
Form x Sex x Grade	998.098	3	332.699	1.457
Form x School x Grade	194.891	3	64.964	1
Sex x School x Grade	1319.099	3	439.700	1.925
Form x Sex x School x Grade	333.141	3	111.047	1
Residual	36544.833	160	228.405	

*Significant at the .005 level.
**Significant at the .05 level.

Significant effects on performance on Level V material were observed at the .005 level for differences in school and differences in grade and the interaction of the differences within the two variables. Effects at the level of .05 level of significance were noted for differences in sex and the interaction of differences in sex and type of school.

Table 19 lists the mean-scores for all grades, sexes and types of school of Level V.

Table 19. Mean-Scores for all Grades, Sexes and Types of School of Level V.

Significant Variables	Mean	N
Sex:		
Male	92.875	96
Female	97.802	96
Type of School:		
Residential	101.667	96
Public	89.010	96
Grade:		
2	78.021	48
3	90.646	48
4	104.063	48
5	108.625	48

Students in residential schools obtained a higher mean-score than students in public schools and girls performed better than boys on the Level V material. Grade mean scores rose steadily through the grades and the smallest

increment was observed between the fourth and fifth grade.

Table 20. Mean Scores of Differences in Interaction Between Sex and School and School and Grade on Level V

Significant Interactions		Mean	N
Sex	School		
Male	Residential	101.938	48
Male	Public	83.813	48
Female	Residential	101.396	48
Female	Public	94.208	48
School	Grade		
Residential	2	97.108	24
Residential	3	98.373	24
Residential	4	105.583	24
Residential	5	110.542	24
Public	2	63.833	24
Public	3	82.958	24
Public	4	102.548	24
Public	5	106.908	24

Age, Intelligence, and Number of Years Using Braille.-- In order to determine to what extent performance on each of the five levels of the Diagnostic Perception Test and factors of chronological age, intelligence and number of years using Braille are related, appropriate data were gathered on 76 students in the study and Pearson Product-Moment Correlation Coefficients were established. Table 21 lists the coefficients of correlation.

Sixty-eight students from residential schools and eight students from public schools were the subjects used in this sub-study. The sample was, therefore somewhat biased.

Number of years using Braille seemed to be of more significance than chronological age or intelligence in this sub-study.

Table 21. Correlation Coefficients* Between Intelligence, Age, and Number of Years Using Braille, and all Levels of the Diagnostic Perception Test

	Age	I.Q.	Level IV	Level I	Level II	Level III	Level V	No. Yrs. Using Braille
Age in Mo.	—	-.1172	.4994	.3544	.2882	.4669	.4896	.8155
I.Q.		—	.3810	.1949	.2975	.3154	.3053	-.0844
Level IV			—	.7115	.7775	.8725	.9040	.5858
Level I				—	.9104	.8481	.6721	.3586
Level II					—	.9147	.7275	.3566
Level III						—	.8368	.4963
Level V							—	.5324
No. yrs. using Braille								—

*r .274 is significant at the .01 level.

All correlation coefficients were significant except the correlations between intelligence and age, intelligence and Level I and intelligence and number of years using Braille.

Achievement on Word Meaning and Paragraph Meaning.--The results of the Stanford Achievement Tests of Word Meaning and Paragraph Meanings, Intermediate Level, Forms M and N, for 82 students were analyzed to determine the relationship between the Stanford scores and total scores on the Diagnostic Perception Test by means of the Spearman Rank Order Correlation Coefficient. Table 22 gives the correlation coefficients determined.

Table 22. Correlations Between Paragraph and Word Meaning Tests and Total Score on the Diagnostic Perception Test

Factor	N	r_1
Word meaning	82	.57
Paragraph meaning	82	.64

Both correlations were positive.

Level II Compared to Complete Level I.-- Most students did not take the complete Level I, Matching with Aid, test. Instead, only those items which had been marked wrong by the student on Level II, Matching without Aid, were re-administered under Level I procedure. The assumption was made that Level I would be easier than Level II. In order to validate this assumption the complete Form A, Level I test was administered to 18 students and the complete Form B was administered to 19 students at Perkins School for the Blind. Their scores on complete Level I were compared to their scores on Level II.

Table 23 gives the results of this comparison.

Table 23. Comparison of Complete
Level II and Level I
Scores on 37 Students

Form	Form A	Form B
	N = 18	N - 19
Mean Score Level I	101.00	93.68
Mean Score Level II	89.67	84.00
Average Difference	11.33	9.08
t of Difference	6.359	9.07
Significance	P<.01	P<.01

The null hypothesis that there was no difference between the two Levels was rejected.

Written versus Oral Performance on Level V.-- Students were permitted to either give the dots orally or to write the symbol on a Braille-writer, when completing Level V, Reproduction, procedure. One sub-group of twenty students in the public schools in New Jersey used both procedures. A comparison was made to see if there was a significant difference in performance.

Table 24 gives the result of this comparison

Table 24. Comparison of Oral and Written Performance on Level V (N = 20)

Mean, Oral	102.8
Mean, Written	99.9
Average Difference	2.8
	t = .422

The null hypothesis is accepted that there is no significant difference in results through written or oral performance on Level V.

Ranking Levels.-- Levels were modes of procedure which had numbers, Roman numerals, assigned to them on an arbitrary basis, since no empirical evidence was available

on the relative difficulty on different modes of presentation or performance. A comparison was made of the mean scores at each level. Since the analysis of variance failed to show a significant difference between Forms A and B at all levels, the mean score of both forms were used in computing the mean average in all levels. Comparisons were made on the scores of 48 students in each grade. The highest scores possible were: Level I, 118; Level II, 118; Level IV, 118; Level IV, 116; and Level V, 118.

Table 25 gives a comparison of the mean scores for all grades and levels. (N=48)

Table 25. Mean Scores by Grade and Level

Grade	Level I	Level II	Level III	Level IV	Level V
2	93.65	75.98	68.08	67.54	78.02
3	100.52	86.83	83.73	81.63	90.65
4	109.02	97.96	98.27	98.21	104.66
5	109.25	100.15	102.42	102.77	108.63
Possible score	118	118	118	116	118

While mean scores for each level rose consistently for each level, the order of relative difficulty varied from grade to grade; easiest to most difficult:

Grade 2 -- I, V, II, III, IV
Grade 3 -- I, V, II, III, IV
Grade 4 -- I, V, III, IV, II
Grade 5 -- I, V, IV, III, II

Tables 26 through 38 gives the results of the rankings of items by total score on every level and form and the individual grade scores by every level and form. In the total tests the highest possible score is 96; in the individual grades the highest possible score is 24.

Table 26. Items Ranked by Total Number of Correct Responses Made By Subjects in All Grades on Levels I, II, III, and V - Form A*

Alphabetically Abbreviated Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
EVERY	78	9	62	11	67	9	89	6
CAN	83	8	67	10	72	8	93	2
BUT	91	6	79	8	88	5	92	3
MORE	83	8	71	9	82	6	92	3
GO	90	7	80	7	93	2	94	1
HAVE	92	5	89	2	96	1	91	4
LIKE	96	1	93	1	82	6	94	1
NOT	95	2	84	5	92	3	92	3
VERY	92	5	87	3	88	5	91	4
YOU	95	2	89	2	90	4	90	5
PEOPLE	93	4	82	6	74	7	93	2
RATHER	94	3	85	4	64	10	87	7

Full Spelling

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
E	92	4	82	7	87	5	95	2
A	92	4	81	8	93	2	96	1
C	96	1	88	4	74	7	95	2
B	93	3	84	6	74	7	96	1
M	92	4	81	8	53	9	95	2
O	93	3	90	3	96	1	95	2
J	94	2	92	1	93	2	94	3
X	96	1	91	2	63	8	94	3
S	96	1	88	4	90	3	92	5
F	92	4	85	5	89	4	96	1
Z	94	2	91	2	89	4	83	7
W	84	7	71	10	90	3	93	4
T	91	5	78	9	86	6	92	5
Q	85	6	71	10	93	2	84	6

*N = 96

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Table 26. (continued)

Upper Cell Whole Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
STILL	91	3	87	4	83	2	90	3
SHALL	79	6	65	6	74	4	80	4
THIS	90	4	89	3	82	3	91	2
AND	93	2	90	2	86	1	92	1
OF	85	5	72	5	83	2	77	5
FOR	95	1	92	1	86	1	92	1

Upper Cell Part Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
ST	94	2	88	3	87	4	94	1
SH	76	7	61	9	88	3	86	5
ING	93	3	87	4	91	2	82	6
TH	92	4	84	6	76	8	93	2
GH	88	5	81	7	77	7	76	8
THE	92	4	86	5	93	1	79	7
AND	95	1	94	1	70	9	90	4
ED	76	7	62	8	61	10	92	3
OF	81	6	61	9	65	5	74	9
FOR	94	2	92	2	78	6	93	2

Lower Cell Whole Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
IN	71	3	60	3	69	3	91	1
ENOUGH	77	2	62	2	69	3	70	4
HIS	92	1	87	1	52	4	76	3
TO	54	5	34	5	81	2	78	2
WAS	63	4	42	4	86	1	76	3

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Table 26. (continued)

Lower Cell Part Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
COM	79	3	68	3	69	3	83	4
IN	62	5	47	5	41	6	91	2
BB	58	6	30	7	51	5	88	3
CC	90	2	78	2	34	7	72	6
FF	67	4	50	4	87	1	76	5
DIS	92	1	83	1	85	2	58	7
EA	43	7	34	6	55	4	93	1

Two-Cell Whole Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
MOTHER	73	11	60	12	57	9	96	1
DAY	95	1	89	1	90	1	93	3
CANNOT	81	8	63	11	42	14	68	10
ONE	85	7	71	8	90	1	94	2
HAD	89	6	76	7	75	6	78	7
PART	92	3	82	5	83	4	83	5
OUGHT	92	3	81	6	55	10	60	11
RIGHT	78	9	65	9	78	5	81	6
UPON	74	10	57	13	87	3	40	14
WHERE	91	4	87	3	52	11	76	8
WORLD	90	5	87	3	50	12	70	9
THROUGH	93	2	88	2	64	7	76	8
WORD	65	13	46	15	58	8	60	11
THERE	91	4	86	4	89	2	64	12
UNDER	66	12	49	14	44	13	84	4
THESE	60	14	44	16	78	5	48	13
KNOW	78	9	64	10	26	15	81	6

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Table 26. (continued)

Two-Cell Part Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
ANCE	87	2	84	2	74	1	69	2
OUND	79	3	68	4	34	5	77	1
FUL	70	4	51	6	55	4	69	2
TION	70	4	57	5	34	5	43	6
ITY	87	2	79	3	21	6	68	3
LESS	59	5	45	8	55	4	39	7
OUNT	57	6	47	7	72	3	57	5
ATION	92	1	85	1	73	2	61	4

Short Form Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
SAID	92	5	89	5	88	2	94	2
COULD	88	8	85	9	85	5	93	3
LITTLE	94	3	91	3	27	27	96	1
MYSELF	58	19	42	25	72	12	76	13
BRAILLE	95	2	91	3	64	18	82	9
BECAUSE	96	1	91	3	86	4	82	9
ABOUT	91	6	84	10	84	6	89	4
YOUR	92	5	82	12	82	7	94	2
BEFORE	70	15	53	23	71	13	81	10
ACROSS	86	10	73	17	84	6	88	6
GOOD	89	7	79	15	64	18	94	2
HIM	87	9	80	14	85	5	78	12
AFTER	87	9	78	16	89	1	93	3
AFTERNOON	86	10	79	15	44	23	86	7
AGAIN	91	6	89	5	71	13	93	3
ITSELF	88	8	84	10	71	13	61	20
WOULD	93	4	88	6	48	21	91	5
BESIDE	93	4	83	11	77	10	82	9
PERHAPS	94	3	88	6	87	3	67	18
TODAY	93	4	90	4	84	6	93	3
ALWAYS	91	6	80	14	86	4	86	7
TOGETHER	73	14	57	20	67	15	79	11
SHOULD	70	15	54	22	64	18	82	9
BETWEEN	66	18	55	21	68	14	75	14
PAID	93	4	88	6	48	21	70	17
EITHER	94	3	92	2	63	19	61	20

(concluded on the next page)

Table 26. (concluded)

Short Form Words (Continued)

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
ALREADY	77	12	59	18	45	22	71	16
TOMORROW	95	2	91	3	71	13	85	8
ALSO	93	4	92	2	80	8	63	19
NEITHER	91	6	87	7	36	26	58	21
DECLARE	89	7	79	15	75	11	52	22
RECEIVE	96	1	93	1	66	16	61	20
BLIND	75	13	58	19	40	25	72	15
PERCEIVE	88	8	80	14	65	17	43	23
CONCEIVING	67	17	42	25	36	26	28	27
DECEIVING	94	3	86	8	43	24	37	25
ACCORDING	88	8	81	13	78	9	42	24
REJOICE	84	11	74	16	49	20	37	25
IMMEDIATE	68	16	46	24	45	22	32	26

Table 27. Items Ranked by Total Number of Correct Responses Made By Subjects in All Grades on Levels I, II, III, and V - Form B*

Alphabetically Abbreviated Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
EVERY	64	10	44	12	58	10	82	8
KNOWLEDGE	86	7	74	9	82	8	66	10
DO	94	3	93	1	89	5	93	2
US	91	5	83	7	73	9	86	6
JUST	95	2	89	5	92	3	88	5
IT	96	1	92	2	93	2	92	3
SO	88	6	76	8	96	1	90	4
FROM	94	3	91	3	92	3	90	4
AS	93	4	85	6	90	4	85	7
WILL	96	1	90	4	90	4	94	1
THAT	80	8	69	10	87	6	86	6
QUITE	76	9	58	11	84	7	78	9

Full Spelling

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
E	88	6	75	9	88	5	94	3
I	88	6	76	8	88	5	94	3
K	81	7	65	10	89	4	95	2
D	78	8	58	11	87	6	95	2
U	69	9	44	13	86	7	93	4
G	91	4	83	4	93	2	94	3
H	96	1	94	1	92	3	95	2
L	68	10	56	12	89	4	96	1
N	91	4	81	6	94	1	94	3
V	88	6	79	7	88	5	90	5
Y	90	5	83	4	89	4	95	2
P	92	3	82	5	79	8	96	1
R	95	2	89	3	76	9	95	2
S	95	2	90	2	66	10	95	2

*N = 96

(continued on the next page)

Table 27. (continued)

Upper Cell Whole Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
STILL	90	4	80	5	77	4	87	3
CHILD	81	5	71	6	63	6	83	4
WHICH	94	2	88	3	89	3	79	6
THE	95	1	92	1	92	2	92	1
WITH	92	3	90	2	73	5	82	5
OUT	95	1	86	4	96	1	88	2

Upper Cell Part Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
ST	93	3	85	2	87	2	94	1
CH	93	3	83	4	46	9	92	3
THE	94	2	84	3	83	4	89	5
OW	86	6	75	6	77	6	89	5
AR	73	9	64	9	79	5	93	2
WH	95	1	87	1	85	3	84	7
BLE	84	7	71	7	88	1	83	8
WITH	80	8	68	8	68	7	78	9
ER	92	4	85	2	62	8	90	4
OU	89	5	82	5	88	1	87	6

Lower Cell Whole Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
IN	63	4	50	4	57	4	88	1
BE	87	3	75	2	70	3	77	2
WAS	56	5	36	5	88	1	77	2
WERE	83	2	74	3	75	2	77	2
BY	94	1	83	1	47	5	69	3

(continued on the next page)

Table 27. (continued)

Lower Cell Part Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
COM	75	3	63	3	66	3	80	4
BE	48	6	28	6	54	4	85	3
CON	60	4	41	4	45	5	66	5
EN	39	7	20	7	73	1	90	1
GG	89	2	82	2	68	2	86	2
DD	95	1	92	1	73	1	86	2
IN	53	5	38	5	45	5	90	1

Two-Cell Whole Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
MOTHER	65	14	48	14	48	13	96	1
FATHER	94	2	86	3	86	1	96	1
SPIRIT	79	10	60	11	65	9	41	13
NAME	95	1	90	2	70	8	92	2
MANY	86	7	68	8	79	5	83	7
TIME	83	6	75	6	82	4	91	3
EVER	70	13	51	13	73	7	83	7
SOME	92	4	83	4	62	10	88	6
WORK	93	3	86	3	53	11	89	5
WHOSE	81	9	61	10	86	1	30	15
LORD	74	11	61	10	83	3	68	10
THOSE	82	8	71	7	84	2	43	12
YOUNG	81	9	67	9	42	15	80	8
HERE	94	2	93	1	78	6	90	4
QUESTION	73	12	56	12	46	14	70	9
THEIR	90	5	82	5	39	16	67	11
CHARACTER	59	15	34	15	52	12	39	14

(continued on the next page)

Table 27. (continued)

Two-Cell Part Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
ANCE	91	2	76	2	75	2	65	2
ENCE	55	8	36	8	68	4	60	3
ONG	70	6	55	5	42	5	70	1
SION	74	5	53	6	38	6	31	7
NESS	64	7	41	7	78	1	45	6
MENT	85	3	72	4	30	8	51	5
ALLY	84	4	74	3	33	7	60	3
ATION	92	1	81	1	70	3	57	4

Short Form Words

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
SAID	89	7	84	9	83	6	92	1
CHILDREN	94	2	89	4	88	2	89	2
AGAINST	55	22	37	27	92	1	81	5
O'CLOCK	95	1	83	10	33	28	72	12
GREAT	78	12	65	17	85	4	80	6
MUST	91	5	87	6	86	3	83	4
FRIEND	90	6	84	9	84	5	84	3
FIRST	91	5	85	8	79	10	80	6
YOURSELF	85	9	73	14	49	24	77	8
LETTER	93	3	87	6	73	15	83	4
HERSELF	76	14	60	19	85	4	75	10
MUCH	95	1	89	4	86	3	83	4
TODAY	95	1	92	1	73	15	89	2
ALMOST	65	21	47	25	77	12	78	7
HIMSELF	87	8	79	11	86	3	80	6
QUICK	83	10	71	15	77	12	74	11
BEHIND	67	20	53	22	84	5	80	6
THEMSELVES	87	8	78	12	75	14	49	21
ABOVE	93	3	92	1	78	11	80	6
HIM	91	5	86	7	88	2	92	1
TONIGHT	93	3	90	3	80	9	83	4
BELOW	85	9	69	16	54	22	80	6
ALTOGETHER	95	1	90	3	48	25	49	21
SUCH	83	10	74	13	46	26	76	9
OURSELVES	75	15	51	23	81	8	45	22
YOURSELVES	83	10	73	14	76	13	54	18

(concluded on the next page)

Table 27. (concluded)

Short Form Words (Continued)

Item	Level I		Level II		Level III		Level V	
	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank	Number Correct	Rank
BENEATH	71	18	57	21	65	18	65	13
NECESSARY	91	5	87	6	83	6	52	19
AFTERWARD	93	3	91	2	75	14	56	16
DECLARING	67	20	47	25	70	16	31	26
DECEIVE	95	1	88	5	67	17	55	17
ONESELF	82	11	69	16	82	7	61	14
REJOICING	69	19	50	24	55	21	27	27
THYSELF	92	4	88	5	64	19	42	24
PERCEIVING	69	19	44	26	33	28	27	27
RECEIVING	74	16	62	18	65	18	33	25
ALTHOUGH	95	1	89	4	62	20	59	15
BEYOND	77	13	59	20	50	23	50	20
CONCEIVE	73	17	57	21	36	27	44	23

Table 28. Items Ranked by Total Number of Correct Responses Made by Subjects in All Grades on Level IV - Forms A and B*

Alphabetically Abbreviated Words

Form A			Form B		
Item	No. Right	Rank	Item	No. Right	Rank
WILL	92	1	LIKE	91	1
CAN	89	2	YOU	90	2
IT	89	2	GO	89	3
FROM	85	3	NOT	87	4
MORE	85	3	DO	85	5
BUT	83	4	HAVE	85	5
AS	82	5	PEOPLE	85	5
SO	82	5	VERY	84	6
THAT	82	5	SO	82	7
JUST	78	6	US	75	8
EVERY	65	7	EVERY	74	9
QUITE	62	8	RATHER	70	10
			KNOWLEDGE	57	11

Full Spelling

Form A			Form B		
S	96	1	G	96	1
W	96	1	L	96	1
X	96	1	S	94	2
C	95	2	Y	94	2
T	95	2	H	93	3
B	94	3	D	92	4
F	92	4	N	92	4
M	91	5	P	92	4
A	90	6	R	92	4
Z	90	6	V	92	4
J	89	7	E	87	5
O	88	8	U	86	6
E	87	9	K	85	7
Q	79	10	I	77	8

*N = 96

(continued on the next page)

Table 28. (continued)

Upper Cell Whole Words

Form A			Form B		
Item	No. Right	Rank	Item	No. Right	Rank
AND	96	1	THE	92	1
FOR	92	2	WITH	81	2
THE	88	3	OUT	79	3
THIS	81	4	STILL	66	4
OF	75	5	CHILD	60	5
ED	74	6	WHICH	59	6
STILL	66	7			
SHALL	62	8			

Upper Cell Part Words

TH	87	1	AR	85	1
SH	73	2	OW	84	2
ST	71	3	CH	78	3
GH	70	4	WH	78	3
ING	58	5	OU	77	4
			ST	73	5
			BLE	68	6
			ER	61	7

Lower Cell Whole Words

TO	88	1	BY	89	1
IN	66	2	BE	64	2
WAS	51	3	IN	64	2
ENOUGH	46	4	WERE	55	3
HIS	31	5	WAS	35	4

Lower Cell Part Words

COM	73	1	IN	78	1
IN	70	2	EN	73	2
EA	66	3	GG	73	2
FF	51	4	BE	72	3
BB	50	5	COM	67	4
CC	37	6	DD	61	5
DIS	35	7	CON	44	6

(continued on the next page)

Table 28. (continued)

Form A			Form B		
Item	No. Right	Rank	Item	No. Right	Rank
Two Cell Whole Words					
ONE	95	1	MOTHER	96	1
MOTHER	94	2	FATHER	94	2
HAD	90	3	MANY	93	3
KNOW	88	4	SOME	91	4
DAY	87	5	TIME	91	4
THERE	85	6	WORK	91	4
WHERE	84	7	HERE	89	5
UNDER	83	8	NAME	89	5
PART	82	9	THEIR	83	6
WORD	82	9	YOUNG	77	7
CANNOT	81	10	EVER	73	8
RIGHT	81	10	THOSE	61	9
THROUGH	73	11	LORD	55	10
THESE	72	12	QUESTION	54	11
UPON	72	12	SPIRIT	48	12
WORLD	72	12	WHOSE	45	13
OUGHT	63	13	CHARACTER	29	14
Two Cell Part Words					
FUL	62	1	ONG	54	1
OUND	54	2	ATION	52	2
ATION	50	3	ENCE	50	3
ITY	48	4	ALLY	46	4
OUNT	48	4	ANCE	42	5
TION	46	5	MENT	36	6
ANCE	41	6	NESS	34	7
LESS	35	7	SION	24	8
Short Form Words					
GOOD	95	1	SAID	95	1
YOUR	95	1	CHILDREN	93	2
AGAIN	94	2	HIM	92	3
SAID	94	2	LETTER	90	4
LITTLE	93	3	FRIEND	88	5
COULD	91	4	AGAINST	87	6
WOULD	91	4	BEHIND	87	6
AFTER	90	5	HIMSELF	85	7
ABOUT	88	6	FIRST	84	8
ACROSS	87	7	GREAT	84	8
BEFORE	85	8	TODAY	84	8
ITS	85	8	ABOVE	83	9

(concluded on the next page)

Table 28. (concluded)

Short Form Words (Continued)					
Form A			Form B		
Item	No. Right	Rank	Item	No. Right	Rank
BECAUSE	84	9	ALMOST	83	9
MYSELF	84	9	MUST	83	9
ALWAYS	83	10	HERSELF	80	10
SHOULD	83	10	SUCH	80	10
TOGETHER	83	10	BELOW	79	11
TODAY	82	11	MUCH	78	12
AFTERNOON	81	12	O'CLOCK	78	12
BRAILLE	79	13	YOURSELF	77	13
TOMORROW	78	14	QUICK	73	14
BESIDE	77	15	TONIGHT	72	15
BETWEEN	77	15	THEMSELVES	69	16
ITSELF	77	15	YOURSELVES	69	16
PERHAPS	74	16	OURSELVES	63	17
RECEIVE	74	16	AFTERWARD	57	18
NEITHER	69	17	ALTHOUGH	53	19
EITHER	68	18	BENEATH	47	20
PAID	68	18	THYSELF	46	21
ALSO	67	19	NECESSARY	45	22
ALREADY	65	20	DECEIVE	44	23
DECLARE	60	21	BEYOND	42	24
BLIND	55	22	ONESELF	37	25
PERCEIVE	42	23	CONCEIVE	36	26
REJOICE	34	24	ALTOGETHER	35	27
ACCORDING	31	25	RECEIVING	29	28
CONCEIVING	25	26	PERCEIVING	25	29
DECEIVING	23	27	DECLARING	23	30
IMMEDIATE	21	28	REJOICING	18	31

Table 29. Items Ranked by Total Number of Correct Responses Made by Grade 2 Subjects on Levels I, II, III, and V - Form A*

Alphabetically Abbreviated Words											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
BUT	24	1	LIKE	23	1	LIKE	24	1	BUT	23	1
LIKE	24	1	BUT	21	2	GO	23	2	CAN	23	1
RATHER	24	1	NOT	20	3	BUT	22	3	EVERY	23	1
NOT	23	2	HAVE	19	4	VERY	22	3	HAVE	22	2
YOU	23	2	GO	19	4	HAVE	21	4	GO	22	2
HAVE	22	3	RATHER	19	4	YOU	21	4	LIKE	22	2
PEOPLE	22	3	VERY	19	4	CAN	20	5	MORE	22	2
VERY	22	3	YOU	19	4	NOT	20	5	NOT	22	2
GO	21	4	PEOPLE	18	5	PEOPLE	19	6	YOU	22	2
EVERY	19	5	EVERY	14	6	MORE	16	7	PEOPLE	21	3
MORE	17	6	CAN	11	7	RATHER	16	7	VERY	21	3
CAN	15	7	MORE	10	8	EVERY	13	8	RATHER	18	4

Full Spelling

C	24	1	J	23	1	S	22	1	A	24	1
S	24	1	X	23	1	J	21	2	B	24	1
X	24	1	C	22	2	O	21	2	C	24	1
A	23	2	O	22	2	B	20	3	F	24	1
E	23	2	A	20	3	C	20	3	J	24	1
J	23	2	Q	20	3	A	19	4	M	24	1
Z	23	2	Z	20	3	E	19	4	O	24	1
F	22	3	E	19	4	F	19	4	W	24	1
M	22	3	M	19	4	M	19	4	E	23	2
O	22	3	S	19	4	Z	19	4	S	23	2
T	22	3	F	18	5	X	18	5	Q	22	3
B	21	4	B	17	6	W	15	6	T	22	3
Q	21	4	T	17	6	T	14	7	X	22	3
W	20	5	W	17	6	Q	11	8	Z	19	4

*N = 24

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Table 29. (continued)

UPPER CELL - WHOLE WORDS

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
STILL	24	1	STILL	24	1	FOR	24	1	FOR	23	1
AND	23	2	AND	22	2	AND	23	2	AND	22	2
FOR	23	2	FOR	22	2	THIS	22	3	STILL	20	3
OF	21	3	THIS	20	3	OF	16	4	THIS	20	3
THIS	21	3	OF	14	4	STILL	16	4	SHALL	18	4
SHALL	16	4	SHALL	13	5	SHALL	12	5	OF	17	5

UPPER CELL - PART WORDS

Level I			Level II			Level III			Level V		
FOR	24	1	AND	23	1	AND	20	1	ED	22	1
ST	24	1	FOR	23	1	FOR	20	1	ST	22	1
AND	23	2	ST	23	1	ST	20	1	TH	22	1
TH	23	2	THE	21	2	GH	18	2	FOR	21	2
THE	23	2	ING	20	3	ING	18	2	SH	21	2
ING	22	3	TH	19	4	THE	18	2	AND	19	3
GH	19	4	GH	17	5	ED	15	3	ING	17	4
OF	18	5	OF	14	6	TH	15	3	THE	16	5
SH	17	6	ED	13	7	OF	9	4	OF	14	6
ED	16	7	SH	11	8	SH	7	5	GH	13	7

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Table 29. (continued)

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
LOWER CELL - WHOLE WORDS											
HIS	22	1	HIS	19	1	HIS	18	1	IN	23	1
ENOUGH	17	2	ENOUGH	15	2	ENOUGH	15	2	HIS	16	2
IN	17	2	IN	13	3	TO	14	3	TO	16	2
TO	11	3	TO	7	4	IN	11	4	WAS	16	2
WAS	10	4	WAS	6	5	WAS	9	5	ENOUGH	13	3
LOWER CELL - PART WORDS											
CC	22	1	DIS	17	1	DIS	16	1	EA	23	1
DIS	22	1	CC	15	2	FF	14	2	IN	22	2
COM	16	2	COM	14	3	CC	13	3	BB	20	3
FF	16	2	FF	11	4	COM	12	4	COM	19	4
IN	11	3	IN	7	5	BB	8	5	FF	16	5
BB	10	4	BB	5	6	IN	6	6	CC	13	6
EA	5	5	EA	4	7	EA	5	7	DIS	6	7

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Table 29. (continued)

TWO-CELL - WHOLE WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DAY	23	1	THROUGH	20	1	DAY	19	1	MOTHER	24	1
THROUGH	23	1	WHERE	20	1	WHERE	18	2	DAY	23	2
OUGHT	22	2	OUGHT	19	2	HAD	17	3	ONE	23	2
THERE	22	2	PART	19	2	THROUGH	17	3	KNOW	18	3
WHERE	22	2	DAY	18	3	WORLD	17	3	RIGHT	18	3
PART	21	3	THERE	18	3	PART	16	4	PART	17	4
HAD	20	4	WORLD	18	3	THERE	16	4	UNDER	17	4
ONE	19	5	HAD	14	4	ONE	11	5	WHERE	16	5
WORLD	19	5	KNOWLEDGE	14	4	OUGHT	10	6	HAD	14	6
CANNOT	18	6	ONE	14	4	CANNOT	9	7	THERE	13	7
RIGHT	18	6	CANNOT	13	5	KNOW	9	7	THROUGH	13	7
KNOW	17	7	RIGHT	12	6	MOTHER	9	7	WORD	12	8
MOTHER	15	8	UNDER	11	7	UNDER	9	7	CANNOT	10	9
UPON	15	8	MOTHER	10	8	UPON	8	8	WORLD	10	9
WORD	15	8	UPON	10	8	WORD	8	8	THESE	8	10
UNDER	14	9	WORD	9	9	RIGHT	7	9	OUGHT	6	11
THESE	9	10	THESE	5	10	THESE	3	10	UPON	4	12
TWO-CELL - PART WORDS											
ATION	21	1	ATION	18	1	ITY	13	1	OUND	12	1
ITY	21	1	ANCE	17	2	ANCE	11	2	ITY	10	2
ANCE	19	2	ITY	17	2	ATION	9	3	ANCE	9	3
OUND	17	3	OUND	13	3	OUND	9	3	FULL	9	3
FUL	14	4	TION	11	4	FUL	8	4	OUNT	9	3
TION	14	4	LESS	9	5	TION	5	5	ATION	7	4
LESS	12	5	FUL	8	6	LESS	4	6	TION	6	5
OUNT	10	6	OUNT	8	6	OUNT	4	6	LESS	4	6

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Table 29. (continued)

SHORT-FORM WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
BECAUSE	24	1	ALSO	22	1	LITTLE	23	1	LITTLE	24	1
RECEIVE	24	1	BECAUSE	22	1	ABOUT	19	2	AGAIN	23	2
TOMORROW	24	1	AGAIN	21	2	BECAUSE	19	2	YOUR	23	2
AGAIN	23	2	BRAILLE	21	2	TODAY	19	2	COULD	22	3
ALSO	23	2	EITHER	21	2	AGAIN	18	3	GOOD	22	3
BESIDE	23	2	LITTLE	21	2	GOOD	18	3	SAID	22	3
BRAILLE	23	2	RECEIVE	21	2	ITS	18	3	AFTER	21	4
DECEIVING	23	2	SAID	21	2	COULD	17	4	TODAY	21	4
PAID	23	2	TOMORROW	21	2	WOULD	17	4	WOULD	20	5
SAID	23	2	DECEIVING	20	3	BRAILLE	16	5	ABOUT	19	6
WOULD	23	2	ACCORDING	19	4	RECEIVE	16	5	ACROSS	19	6
YOUR	23	2	NEITHER	19	4	TOMORROW	16	5	ITS	19	6
EITHER	22	3	PAID	19	4	YOUR	16	5	ALWAYS	17	7
LITTLE	22	3	TODAY	19	4	BESIDE	15	6	BECAUSE	17	7
PERHAPS	22	3	WOULD	19	4	AFTERNOON	14	7	BESIDE	16	8
ABOUT	21	4	ABOUT	18	5	EITHER	14	7	BRAILLE	16	8
ACROSS	21	4	BESIDE	18	5	ITSELF	14	7	TOMORROW	16	8
ALWAYS	21	4	PERHAPS	18	5	PAID	14	7	AFTERNOON	15	9
NEITHER	21	4	ALWAYS	17	6	ALSO	13	8	TOGETHER	15	9
TODAY	21	4	COULD	17	6	ALWAYS	13	8	SHOULD	14	10
ACCORDING	20	5	DECLARE	17	6	SAID	13	8	BEFORE	13	11
AFTER	20	5	GOOD	17	6	ACROSS	12	9	MYSELF	13	11
DECLARE	20	5	ITSELF	17	6	AFTER	12	9	BLIND	10	12
GOOD	20	5	YOUR	17	6	DECEIVING	12	9	ALSO	9	13

(concluded on the next page)

Table 29. (concluded)

SHORT-FORM WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	Right	Rank
ITSELF	19	6	AFTER	16	7	PERHAPS	12	9	BETWEEN	9	13
AFTERNOON	18	7	AFTERNOON	15	8	BLIND	11	10	ITSELF	9	13
COULD	18	7	REJOICE	15	8	DECLARE	10	11	ALREADY	8	14
ITS	18	7	PERCEIVE	14	9	NEITHER	10	11	PERHAPS	8	14
REJOICE	18	7	ACROSS	13	10	PERCEIVE	10	11	RECEIVE	8	14
PERCEIVE	17	8	ITS	13	10	ACCORDING	9	12	PAID	7	15
TOGETHER	17	8	BLIND	12	11	ALREADY	9	12	EITHER	5	16
ALREADY	15	9	BETWEEN	11	12	SHOULD	8	13	NEITHER	5	16
BEFORE	15	9	ALREADY	9	13	BEFORE	6	14	PERCEIVE	5	16
BLIND	15	9	TOGETHER	9	13	BETWEEN	6	14	ACCORDING	4	17
BETWEEN	14	10	BEFORE	7	14	CONCEIVING	6	14	DECLARE	3	18
IMMEDIATE	12	11	IMMEDIATE	7	14	REJOICE	6	14	DECEIVING	1	19
MYSELF	11	12	SHOULD	7	14	TOGETHER	6	14	CONCEIVING	0	20
CONCEIVING	10	13	MYSELF	5	15	MYSELF	5	15	IMMEDIATE	0	20
SHOULD	10	13	CONCEIVING	3	16	IMMEDIATE	4	16	REJOICE	0	20

Table 30. Items Ranked by Total Number of Correct Responses Made by Subjects in Grade 3 on Levels I, II, III, and V - Form A*

Alphabetically Abbreviated Words											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
LIKE	24	1	YOU	24	1	HAVE	24	1	MORE	24	1
NOT	24	1	HAVE	23	2	LIKE	24	1	GO	24	1
YOU	24	1	LIKE	23	2	NOT	24	1	LIKE	24	1
GO	23	2	PEOPLE	22	3	YOU	23	2	PEOPLE	24	1
HAVE	23	2	GO	21	4	BUT	22	3	RATHER	24	1
PEOPLE	23	2	VERY	21	4	GO	22	3	CAN	23	2
MORE	22	3	RATHER	21	4	VERY	21	4	BUT	23	2
VERY	22	3	NOT	20	5	PEOPLE	21	4	NOT	23	2
RATHER	22	3	MORE	19	6	CAN	20	5	HAVE	22	3
CAN	21	4	BUT	18	7	RATHER	20	5	VERY	22	3
BUT	21	4	CAN	16	8	MORE	18	6	EVERY	20	4
EVERY	20	5	EVERY	15	9	EVERY	12	7	YOU	20	4

*N = 24

(continued on the next page)

Table 30. (continued)

Full Spelling

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
C	24	1	B	23	1	O	24	1	E	24	1
B	24	1	O	23	1	J	24	1	A	24	1
X	24	1	J	23	1	X	24	1	B	24	1
S	24	1	X	23	1	S	24	1	M	24	1
F	24	1	Z	23	1	Z	24	1	X	24	1
E	23	2	F	22	2	E	23	2	F	24	1
M	23	2	C	21	3	A	23	2	C	23	2
O	23	2	M	21	3	F	22	3	O	23	2
J	23	2	S	21	3	C	21	4	J	23	2
Z	23	2	T	21	3	W	21	4	T	23	2
T	23	2	E	19	4	B	20	5	S	22	3
A	22	3	A	18	5	M	20	5	W	22	3
W	20	4	W	15	6	T	19	6	Z	19	4
Q	19	5	Q	14	7	Q	15	7	Q	17	5

(continued on the next page)

Table 30. (continued)

Upper Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
FOR	24	1	THIS	23	1	FOR	24	1	STILL	23	1
THIS	23	2	FOR	23	1	AND	23	2	THIS	23	1
AND	23	2	AND	21	2	THIS	21	3	AND	22	2
SHALL	22	3	STILL	19	3	STILL	18	4	FOR	21	3
STILL	20	4	SHALL	18	4	OF	16	5	SHALL	20	4
OF	18	5	OF	15	5	SHALL	11	6	OF	17	5

Upper Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
AND	24	1	AND	24	1	ST	22	1	ST	24	1
ST	23	2	ING	23	2	THE	21	2	AND	24	1
ING	23	2	ST	21	3	FOR	21	2	FOR	24	1
TH	23	2	TH	21	3	ING	20	3	TH	23	2
CH	22	3	FOR	21	3	AND	20	3	ED	23	2
THE	22	3	THE	19	4	TH	19	4	SH	22	3
FOR	22	3	SH	18	5	GH	18	5	ING	19	4
SH	19	4	CH	17	6	ED	12	6	OF	19	4
ED	18	5	ED	13	7	OF	11	7	GH	17	5
OF	18	5	OF	12	8	SH	9	8	THE	17	5

(continued on the next page)

Table 30. (continued)

Lower Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
HIS	23	1	HIS	23	1	HIS	23	1	IN	22	1
ENOUGH	20	2	ENOUGH	16	2	ENOUGH	19	2	HIS	19	2
IN	17	3	IN	15	3	TO	17	3	TO	19	2
WAS	17	3	WAS	9	4	IN	15	4	WAS	17	3
TO	9	4	TO	2	5	WAS	9	5	ENOUGH	15	4

Lower Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DIS	23	1	CC	21	1	COM	17	1	EA	24	1
CC	22	2	DIS	21	1	CC	16	2	IN	22	2
COM	18	3	COM	16	2	DIS	14	3	COM	20	3
IN	15	4	IN	10	3	IN	13	4	BB	20	3
BB	12	5	FF	7	4	FF	13	4	FF	16	4
FF	12	5	EA	7	4	BB	9	5	CC	15	5
EA	8	6	BB	4	5	EA	7	6	DIS	12	6

(continued on the next page)

Table 30. (continued)

Two Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DAY	24	1	DAY	23	1	PART	22	1	MOTHER	24	1
PART	23	2	WORLD	23	1	DAY	21	2	ONE	23	2
OUGHT	23	2	THERE	22	2	WHERE	21	2	DAY	22	3
WORLD	23	2	THROUGH	21	3	WORLD	21	2	HAD	20	4
THERE	23	2	PART	20	4	THROUGH	21	2	PART	20	4
WHERE	22	3	WHERE	20	4	HAD	20	3	UNDER	20	4
THROUGH	22	3	HAD	18	5	OUGHT	19	4	RIGHT	19	5
HAD	21	4	ONE	17	6	THERE	19	4	KNOW	18	6
ONE	20	5	OUGHT	17	6	CANNOT	17	5	CANNOT	17	7
MOTHER	19	6	KNOW	16	7	ONE	16	6	WHERE	17	7
KNOW	19	6	MOTHER	15	8	RIGHT	16	6	THROUGH	16	8
CANNOT	18	7	UPON	13	9	UPON	12	7	OUGHT	15	9
UPON	17	8	RIGHT	12	10	KNOW	12	7	WORLD	15	9
UNDER	15	9	CANNOT	11	11	MOTHER	11	8	THERE	14	10
RIGHT	14	10	WORD	11	11	WORD	11	8	WORD	13	11
THESE	14	10	UNDER	11	11	THESE	11	8	UPON	9	12
WORD	12	11	THESE	8	12	UNDER	9	9	THESE	5	13

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Table 30. (continued)

Two Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ATION	23	1	ANCE	21	1	ITY	21	1	OUND	19	1
ANCE	21	2	ATION	20	2	ANCE	17	2	FUL	17	2
ITY	21	2	ITY	19	3	OUND	17	2	ITY	17	2
OUND	20	3	OUND	16	4	ATION	16	3	ANCE	16	3
FUL	15	4	FUL	9	5	FUL	11	4	ATION	16	3
TION	14	5	TION	9	5	TION	8	5	OUNT	10	4
LESS	13	6	OUNT	8	6	LESS	8	5	LESS	8	5
OUNT	11	7	LESS	7	7	OUNT	7	6	TION	8	5

Short Form Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DECEIVING	24	1	RECEIVE	24	1	BECAUSE	23	1	TODAY	24	1
RECEIVE	24	1	DECEIVING	24	1	LITTLE	23	1	AFTER	24	1
EITHER	24	1	EITHER	24	1	COULD	23	1	LITTLE	24	1
PERHAPS	24	1	LITTLE	24	1	SAID	23	1	SAID	24	1
TODAY	24	1	PAID	23	2	GOOD	23	1	GOOD	24	1
LITTLE	24	1	ALSO	23	2	BRAILLE	22	2	ABOUT	23	2
BRAILLE	24	1	PERHAPS	23	2	AGAIN	22	2	YOUR	23	2
BECAUSE	24	1	TODAY	23	2	TODAY	22	2	COULD	23	2

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Table 30. (continued)

Short Form Words (Continued)

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ABOUT	24	1	BECAUSE	22	3	ITS	22	2	AFTERNOON	23	2
PERCEIVE	23	2	TOMORROW	22	3	ABOUT	21	3	AGAIN	23	2
PAID	23	2	NEITHER	22	3	ALWAYS	21	3	WOULD	23	2
ALWAYS	23	2	BRAILLE	22	3	TOMORROW	21	3	ALWAYS	23	2
COULD	23	2	WOULD	22	3	WOULD	21	3	BEFORE	22	3
BESIDE	23	2	ITSELF	22	3	YOUR	20	4	ACROSS	22	3
NEITHER	23	2	PERCEIVE	21	4	PAID	20	4	SHOULD	22	3
ALSO	23	2	SAID	21	4	RECEIVE	20	4	TOMORROW	22	3
TOMORROW	23	2	COULD	21	4	AFTER	19	5	BRAILLE	21	4
ACCORDING	22	3	ABOUT	21	4	AFTERNOON	19	5	BESIDE	21	4
DECLARE	22	3	YOUR	21	4	ITSELF	19	5	MYSELF	20	5
AFTERNOON	22	3	ITS	21	4	BESIDE	19	5	BECAUSE	20	5
SAID	22	3	BESIDE	20	5	PERHAPS	19	5	BETWEEN	20	5
YOUR	22	3	AGAIN	20	5	EITHER	17	6	ALREADY	20	5
ITS	22	3	GOOD	19	6	ALSO	17	6	TOGETHER	19	6
GOOD	22	3	AFTERNOON	19	6	ALREADY	16	7	BLIND	19	6
WOULD	22	3	ACCORDING	18	7	DECEIVING	16	7	ITS	18	7
ITSELF	22	3	SHOULD	18	7	NEITHER	15	8	PERHAPS	17	8
SHOULD	21	4	AFTER	18	7	ACCORDING	15	8	PAID	17	8
AFTER	21	4	DECLARE	18	7	ACROSS	15	8	ITSELF	15	9
AGAIN	20	5	ALWAYS	17	8	DECLARE	14	9	ALSO	15	9
ACROSS	20	5	ACROSS	16	9	TOGETHER	12	10	EITHER	14	10
REJOICE	19	6	REJOICE	15	10	PERCEIVE	12	10	NEITHER	13	11
ALREADY	19	6	BLIND	13	11	BEFORE	11	11	RECEIVE	13	11
BLIND	17	7	ALREADY	12	12	BLIND	11	11	DECLARE	11	12
IMMEDIATE	16	8	MYSELF	12	12	MYSELF	9	12	IMMEDIATE	6	13
CONCEIVING	16	8	BEFORE	11	13	REJOICE	9	12	REJOICE	6	13

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Table 30. (concluded)

Short Form Words (Continued)

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
MYSELF	16	8	BETWEEN	11	13	BETWEEN	9	12	PERCEIVE	5	14
TOGETHER	15	9	TOGETHER	11	13	SHOULD	8	13	ACCORDING	4	15
BEFORE	14	10	CONCEIVING	10	14	IMMEDIATE	8	13	DECEIVING	3	16
BETWEEN	13	11	IMMEDIATE	7	15	CONCEIVING	3	14	CONCEIVING	2	17

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[illegible]			[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 31. Items Ranked by Total Number of Correct Responses Made by Subjects in Grade 4 on Levels I, II, III, and V - Form A*

Alphabetically Abbreviated Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
CAN	24	1	LIKE	24	1	RATHER	24	1	MORE	24	1
HAVE	24	1	VERY	24	1	NOT	24	1	GO	24	1
LIKE	24	1	YOU	24	1	LIKE	24	1	HAVE	24	1
NOT	24	1	HAVE	24	1	HAVE	24	1	LIKE	24	1
VERY	24	1	PEOPLE	22	2	PEOPLE	23	2	VERY	24	1
YOU	24	1	RATHER	22	2	VERY	23	2	YOU	24	1
PEOPLE	24	1	NOT	22	2	YOU	23	2	PEOPLE	24	1
RATHER	24	1	GO	20	3	GO	23	2	EVERY	23	2
GO	23	2	MORE	20	3	BUT	22	3	CAN	23	2
BUT	22	3	CAN	20	3	MORE	20	4	BUT	23	2
MORE	22	3	BUT	19	4	CAN	20	4	NOT	23	2
EVERY	19	4	EVERY	18	5	EVERY	15	5	RATHER	22	3

*N = 24

(continued on the next page)

Table 31. (continued)

Full Spelling

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
A	24	1	J	24	1	F	24	1	F	24	1
C	24	1	S	24	1	S	24	1	X	24	1
B	24	1	Z	24	1	X	24	1	E	24	1
M	24	1	X	22	2	O	24	1	A	24	1
O	24	1	F	22	2	C	24	1	C	24	1
J	24	1	A	22	2	M	24	1	B	24	1
X	24	1	C	22	2	B	23	2	M	24	1
S	24	1	O	22	2	J	23	2	T	24	1
Z	24	1	T	22	2	W	23	2	O	24	1
E	23	2	E	21	3	Z	22	3	Q	23	2
F	23	2	B	21	3	A	22	3	S	23	2
T	23	2	M	21	3	E	22	3	J	23	2
W	22	3	W	20	4	T	21	4	W	23	2
Q	22	3	Q	17	5	Q	21	4	Z	22	3

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Table 31. (continued)

Upper Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
STILL	24	1	THIS	24	1	FOR	24	1	STILL	24	1
THIS	24	1	AND	24	1	THIS	23	2	THIS	24	1
AND	24	1	STILL	23	2	AND	22	3	AND	24	1
FOR	24	1	FOR	23	2	OF	21	4	FOR	24	1
SHALL	23	2	OF	22	3	SHALL	21	4	OF	22	2
OF	23	2	SHALL	18	4	STILL	20	5	SHALL	20	3

Upper Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ST	24	1	FOR	24	1	AND	24	1	ST	24	1
ING	24	1	GH	24	1	FOR	24	1	TH	24	1
TH	24	1	THE	23	2	ING	23	2	FOR	24	1
GH	24	1	AND	23	2	THE	22	3	AND	23	2
THE	24	1	TH	23	2	ST	22	3	ED	23	2
AND	24	1	ST	22	3	GH	21	4	THE	23	2
OF	24	1	ING	22	3	TH	19	5	GH	22	3
FOR	24	1	SH	19	4	OF	19	5	ING	22	3
SH	22	2	ED	16	5	ED	18	6	SH	21	4
ED	21	3	OF	16	5	SH	14	7	OF	19	5

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Table 31. (continued)

Lower Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
HIS	24	1	HIS	23	1	HIS	24	1	HIS	23	1
IN	18	2	ENOUGH	16	2	TO	22	2	IN	23	1
ENOUGH	18	2	IN	16	2	ENOUGH	17	3	TO	21	2
TO	18	2	TO	14	3	IN	15	4	WAS	21	2
WAS	18	2	WAS	10	4	WAS	13	5	ENOUGH	19	3

Lower Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DIS	24	1	DIS	24	1	DIS	22	1	BB	24	1
CC	22	2	CC	19	2	CC	21	2	IN	23	2
COM	22	2	COM	18	3	FF	20	3	COM	23	2
FF	20	3	FF	16	4	COM	18	4	FF	22	3
IN	17	4	IN	14	5	IN	17	5	EA	22	3
BB	16	5	BB	11	6	EA	16	6	CC	21	4
EA	14	6	EA	10	7	BB	12	7	DIS	20	5

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]			[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Table 31. (continued)

Two Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DAY	24	1	DAY	24	1	DAY	24	1	MOTHER	24	1
HAD	24	1	WHERE	24	1	WHERE	24	1	DAY	24	1
PART	24	1	THROUGH	24	1	WORLD	24	1	ONE	24	1
RIGHT	24	1	WORLD	23	2	ONE	23	2	THROUGH	24	1
WHERE	24	1	HAD	22	3	THROUGH	23	2	KNOW	23	2
WORLD	24	1	PART	22	3	OUGHT	22	3	UNDER	23	2
THROUGH	24	1	THERE	22	3	HAD	21	4	HAD	22	3
ONE	23	2	OUGHT	21	4	PART	21	4	PART	22	3
OUGHT	23	2	RIGHT	20	5	THERE	21	4	WHERE	21	4
CANNOT	22	3	CANNOT	18	6	CANNOT	18	5	WORLD	21	4
THERE	22	3	ONE	18	6	RIGHT	18	5	RIGHT	20	5
UPON	21	4	UPON	16	7	UPON	17	6	CANNOT	19	6
UNDER	20	5	KNOW	16	7	KNOW	16	7	THERE	19	6
WORD	19	6	MOTHER	15	8	MOTHER	14	8	OUGHT	17	7
MOTHER	19	6	THESE	15	8	THESE	14	8	WORD	17	7
KNOW	19	6	UNDER	13	9	WORD	12	9	THESE	16	8
THESE	18	7	WORD	10	10	UNDER	12	9	UPON	12	9

(continued on the next page)

Table 31. (continued)

Two Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ATION	24	1	ANCE	23	1	ATION	23	1	OUND	23	1
ANCE	24	1	ATION	23	1	ANCE	23	1	ANCE	22	2
ITY	21	2	ITY	20	2	ITY	23	1	FUL	20	3
FUL	21	2	OUND	18	3	OUND	20	2	ATION	19	4
OUND	20	3	FUL	17	4	TION	11	3	ITY	19	4
TION	20	3	LESS	15	5	FUL	11	3	OUNT	17	5
OUNT	16	4	TION	15	5	OUNT	10	4	LESS	13	6
LESS	15	5	OUNT	12	6	LESS	8	5	TION	8	7

Short Form Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
SAID	24	1	SAID	24	1	COULD	24	1	SAID	24	1
COULD	24	1	COULD	24	1	LITTLE	24	1	COULD	24	1
LITTLE	24	1	BRAILLE	24	1	PERHAPS	24	1	LITTLE	24	1
BRAILLE	24	1	BECAUSE	24	1	SAID	23	2	YOUR	24	1
BECAUSE	24	1	AGAIN	24	1	BRAILLE	23	2	GOOD	24	1
GOOD	24	1	WOULD	24	1	BECAUSE	23	2	AFTER	24	1
ITS	24	1	PERHAPS	24	1	ACROSS	23	2	AFTERNOON	24	1
AGAIN	24	1	TODAY	24	1	ITS	23	2	WOULD	24	1

(continued on the next page)

Table 31. (continued)

Short Form Words (Continued)

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ITSELF	24	1	TOMORROW	24	1	AGAIN	23	2	TODAY	24	1
WOULD	24	1	ALSO	24	1	ITSELF	23	2	SHOULD	24	1
BESIDE	24	1	RECEIVE	24	1	WOULD	23	2	ABOUT	23	2
PERHAPS	24	1	ITS	23	2	TODAY	23	2	ACROSS	23	2
TODAY	24	1	BESIDE	23	2	ALWAYS	23	2	AGAIN	23	2
PAID	24	1	ALWAYS	23	2	PAID	23	2	TOMORROW	23	2
EITHER	24	1	PAID	23	2	EITHER	23	2	BRAILLE	22	3
TOMORROW	24	1	EITHER	23	2	TOMORROW	23	2	BECAUSE	22	3
ALSO	24	1	NEITHER	23	2	RECEIVE	23	2	BEFORE	22	3
NEITHER	24	1	PERCEIVE	23	2	ABOUT	22	3	ALWAYS	22	3
DECLARE	24	1	ACCORDING	23	2	YOUR	22	3	BETWEEN	22	3
RECEIVE	24	1	LITTLE	22	3	GOOD	22	3	PAID	22	3
PERCEIVE	24	1	ABOUT	22	3	AFTER	22	3	BLIND	22	3
DECEIVING	24	1	ACROSS	22	3	AFTERNOON	22	3	MYSELF	21	4
ACCORDING	24	1	AFTER	22	3	BESIDE	22	3	BESIDE	21	4
REJOICE	24	1	AFTERNOON	22	3	ALREADY	22	3	TOGETHER	21	4
ABOUT	23	2	ITSELF	22	3	ALSO	22	3	ALREADY	21	4
YOUR	23	2	DECLARE	22	3	NEITHER	22	3	ITS	19	5
ACROSS	23	2	REJOICE	22	3	DECLARE	22	3	ITSELF	19	5
AFTER	23	2	YOUR	21	4	PERCEIVE	21	4	PERHAPS	19	5
AFTERNOON	23	2	GOOD	21	4	TOGETHER	19	5	EITHER	19	5
ALWAYS	23	2	DECEIVING	21	4	BLIND	17	6	NEITHER	18	6
BLIND	23	2	ALREADY	18	5	REJOICE	17	6	RECEIVE	18	6
ALREADY	22	3	BEFORE	17	6	BEFORE	16	7	ALSO	17	7
IMMEDIATE	21	4	TOGETHER	17	6	DECEIVING	16	7	DECLARE	16	8
BEFORE	20	5	SHOULD	16	7	ACCORDING	16	7	DECEIVING	15	9
TOGETHER	19	6	BLIND	15	8	SHOULD	15	8	PERCEIVE	14	10

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Table 31. (concluded)

Short Form Words (Continued)

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
SHOULD	19	6	BETWEEN	14	9	BETWEEN	15	8	REJOICE	14	10
CONCEIVING	19	6	IMMEDIATE	14	9	IMMEDIATE	10	9	ACCORDING	12	11
BETWEEN	18	7	CONCEIVING	13	10	MYSELF	9	10	IMMEDIATE	10	12
MYSELF	14	8	MYSELF	12	11	CONCEIVING	9	10	CONCEIVING	9	13

Table 32. Items Ranked by Total Number of Correct Responses Made by Grade 5 Subjects on Levels I, II, III, and V - Form A*

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	Right	Rank
Alphabetically Abbreviated Words											
BUT	24	1	HAVE	23	1	GO	24	1	CAN	24	1
LIKE	24	1	LIKE	23	1	HAVE	24	1	GO	24	1
NOT	24	1	RATHER	23	1	LIKE	24	1	LIKE	24	1
PEOPLE	24	1	VERY	23	1	NOT	24	1	NOT	24	1
RATHER	24	1	MORE	22	2	PEOPLE	24	1	PEOPLE	24	1
VERY	24	1	NOT	22	2	RATHER	24	1	VERY	24	1
YOU	24	1	YOU	22	2	VERY	24	1	YOU	24	1
CAN	23	2	BUT	21	3	OUT	23	2	BUT	23	2
GO	23	2	CAN	20	4	YOU	23	2	EVERY	23	2
HAVE	23	2	GO	20	4	CAN	22	3	HAVE	23	2
MORE	22	3	PEOPLE	20	4	MORE	19	4	RATHER	23	2
EVERY	20	4	EVERY	15	5	EVERY	18	5	MORE	22	3
Full Spelling											
B	24	1	S	24	1	A	24	1	A	24	1
C	24	1	Z	24	1	B	24	1	B	24	1
J	24	1	B	23	2	C	24	1	C	24	1
O	24	1	C	23	2	E	24	1	E	24	1
S	24	1	E	23	2	J	24	1	F	24	1
X	24	1	F	23	2	O	24	1	J	24	1
Z	24	1	O	23	2	S	24	1	O	24	1
A	23	2	X	23	2	Z	24	1	S	24	1
E	23	2	J	22	3	F	23	2	W	24	1
F	23	2	A	21	4	M	23	2	X	24	1
M	23	2	M	20	5	X	23	2	M	23	2
Q	23	2	Q	20	5	T	22	3	T	23	2
T	22	3	W	19	6	W	20	4	Z	23	2
W	22	3	T	18	7	Q	19	5	Q	22	3

*N = 24

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Table 32. (continued)

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
					UPPER-CELL - WHOLE WORDS						
FOR	24	1	FOR	24	1	AND	24	1	AND	24	1
AND	23	2	AND	23	2	FOR	24	1	FOR	24	1
OF	23	2	THIS	22	3	STILL	23	2	STILL	24	1
STILL	23	2	OF	21	4	THIS	23	2	THIS	24	1
THIS	22	3	STILL	21	4	OF	20	3	OF	22	2
SHALL	18	4	SHALL	16	5	SHALL	19	4	SHALL	20	3
					UPPER-CELL - PART WORDS						
AND	24	1	AND	24	1	AND	24	1	AND	24	1
FOR	24	1	FOR	24	1	TH	24	1	ED	24	1
ING	24	1	GH	23	2	THE	24	1	FOR	24	1
GH	23	1	THE	23	2	ED	23	2	GH	24	1
ST	23	2	ING	22	3	FOR	23	2	ING	24	1
THE	23	2	ST	22	3	OF	23	2	ST	24	1
TH	22	3	TH	21	4	ST	23	2	TH	24	1
ED	21	4	ED	20	5	GH	22	3	THE	23	2
OF	21	4	OF	19	6	ING	22	3	OF	22	3
SH	18	5	SH	13	7	SH	16	4	SH	22	3

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Table 32. (continued)

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
						LOWER-CELL - WHOLE WORDS					
HIS	23	1	HIS	22	1	HIS	23	1	ENOUGH	23	1
ENOUGH	22	2	WAS	17	2	TO	22	2	IN	23	1
IN	19	3	IN	16	3	ENOUGH	19	3	TO	22	2
WAS	18	4	ENOUGH	15	4	IN	16	4	WAS	22	2
TO	16	5	TO	11	5	WAS	16	4	HIS	18	3
						LOWER-CELL - PART WORDS					
CC	24	1	CC	23	1	CC	23	1	BB	24	1
COM	23	2	DIS	21	2	DIS	21	2	EA	24	1
DIS	23	2	COM	20	3	FF	21	2	IN	24	1
BB	20	3	FF	16	4	COM	19	3	CC	23	2
FF	19	4	IN	16	4	IN	18	4	FF	22	3
IN	19	4	EA	13	5	EA	17	5	COM	21	4
EA	16	5	BB	10	6	BB	16	6	DIS	20	5

(continued on the next page)

Table 32. (continued)

Level I Item	Level I No. Right	Level I Rank	Level II Item	Level II No. Right	Level II Rank	Level III Item	Level III No. Right	Level III Rank	Level V Item	Level V No. Right	Level V Rank
TWO-CELL - WHOLE WORDS											
DAY	24	1	DAY	24	1	PART	23	1	DAY	24	1
HAD	24	1	OUGHT	24	1	THROUGH	23	1	MOTHER	24	1
OUGHT	24	1	THERE	24	1	WHERE	23	1	ONE	24	1
PART	24	1	THROUGH	23	2	DAY	22	2	PART	24	1
THERE	24	1	WHERE	23	2	OUGHT	22	2	RIGHT	24	1
THROUGH	24	1	WORLD	23	2	THERE	22	2	UNDER	24	1
WORLD	24	1	HAD	22	3	CANNOT	21	3	WORLD	24	1
CANNOT	23	2	ONE	22	3	HAD	21	3	THROUGH	23	2
KNOW	23	2	CANNOT	21	4	RIGHT	21	3	CANNOT	22	3
WHERE	23	2	PART	21	4	WORLD	21	3	HAD	22	3
ONE	23	2	RIGHT	21	4	ONE	20	4	KNOW	22	3
RIGHT	22	3	MOTHER	20	5	UNDER	16	5	OUGHT	22	3
UPON	21	4	KNOW	18	6	UPON	16	5	WHERE	22	3
MOTHER	20	5	UPON	18	6	KNOW	15	6	THESE	19	4
THESE	19	6	THESE	16	7	MOTHER	14	7	THERE	18	5
WORD	19	6	WORD	16	7	THESE	11	8	WORD	18	5
UNDER	17	7	UNDER	14	8	WORD	11	8	UPON	15	6
TWO-CELL - PART WORDS											
ATION	24	1	ATION	24	1	ANCE	24	1	FUL	23	1
ITY	24	1	ANCE	23	2	ATTON	22	2	OUND	23	1
ANCE	23	2	ITY	23	2	OUND	22	2	ANCE	22	2
OUND	22	3	TION	22	3	ITY	21	3	ITY	22	2
TION	22	3	OUND	21	4	ATION	14	4	OUNT	21	3
FUL	20	4	OUNT	19	5	FUL	12	5	ATION	19	4
OUNT	20	4	FUL	17	6	OUNT	12	5	LESS	14	5
LESS	19	5	LESS	14	7	LESS	10	6	TION	8	6

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Table 32. (continued)

SHORT-FORM WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
AGAIN	24	1	AGAIN	24	1	BRAILLE	24	1	ABOUT	24	1
ALWAYS	24	1	BRAILLE	24	1	COULD	24	1	ACROSS	24	1
BECAUSE	24	1	DECEIVING	24	1	PAID	24	1	AFTER	24	1
BRAILLE	24	1	EITHER	24	1	SAID	24	1	AFTERNOON	24	1
EITHER	24	1	LITTLE	24	1	TODAY	24	1	AGAIN	24	1
LITTLE	24	1	RECEIVE	24	1	ACROSS	23	2	ALWAYS	24	1
PERCEIVE	24	1	TODAY	24	1	AGAIN	23	2	BEFORE	24	1
PERHAPS	24	1	TOMORROW	24	1	ALSO	23	2	BESIDE	24	1
RECEIVE	24	1	ABOUT	23	2	ALWAYS	23	2	BETWEEN	24	1
TODAY	24	1	AFTERNOON	23	2	ITS	23	2	COULD	24	1
TOMORROW	24	1	ALSO	23	2	NEITHER	23	2	GOOD	24	1
WOULD	24	1	ALWAYS	23	2	PERHAPS	23	2	LITTLE	24	1
YOUR	24	1	BECAUSE	23	2	RECEIVE	23	2	PAID	24	1
ABOUT	23	2	COULD	23	2	TOMORROW	23	2	SAID	24	1
AFTER	23	2	ITS	23	2	WOULD	23	2	TODAY	24	1
AFTERNOON	23	2	ITSELF	23	2	ABOUT	22	3	TOGETHER	24	1
ALSO	23	2	NEITHER	23	2	ACCORDING	22	3	TOMORROW	24	1
BESIDE	23	2	PAID	23	2	AFTERNOON	22	3	WOULD	24	1
COULD	23	2	PERHAPS	23	2	EITHER	22	3	YOUR	24	1
DECEIVING	23	2	SAID	23	2	GOOD	22	3	BECAUSE	23	2
DECLARE	23	2	WOULD	23	2	LITTLE	22	3	BRAILLE	23	2

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Table 32. (concluded)

SHORT-FORM WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
GOOD	23	2	YOUR	23	2	BECAUSE	21	4	EITHER	23	2
ITS	23	2	ACROSS	22	2	DECEIVING	21	4	PERHAPS	23	2
ITSELF	23	2	AFTER	22	2	DECLARE	21	4	ACCORDING	22	3
NEITHER	23	2	BESIDE	22	2	ITSELF	21	4	ALREADY	22	3
PAID	23	2	DECLARE	22	2	PERCEIVE	21	4	ALSO	22	3
REJOICE	23	2	GOOD	22	2	YOUR	21	4	DECLARE	22	3
SAID	23	2	PERCEIVE	22	2	AFTER	20	5	ITS	22	3
ACCORDING	22	3	REJOICE	22	2	BESIDE	19	6	MYSELF	22	3
ACROSS	22	3	ACCORDING	21	3	ALREADY	18	7	NEITHER	22	3
CONCEIVING	22	3	ALREADY	20	4	REJOICE	18	7	RECEIVE	22	3
TOGETHER	22	3	TOGETHER	20	4	SHOULD	17	8	SHOULD	22	3
ALREADY	21	4	BETWEEN	19	5	TOGETHER	17	8	BLIND	21	4
BEFORE	21	4	BEFORE	18	6	BEFORE	16	9	PERCEIVE	19	5
BETWEEN	21	4	BLIND	18	6	BETWEEN	16	9	DECEIVING	18	6
BLIND	20	5	IMMEDIATE	18	6	BLIND	16	9	ITSELF	18	6
SHOULD	20	5	CONCEIVING	16	7	CONCEIVING	15	10	CONCEIVING	17	7
IMMEDIATE	19	6	MYSELF	13	8	IMMEDIATE	14	11	REJOICE	17	7
MYSELF	17	7	SHOULD	13	8	MYSELF	10	12	IMMEDIATE	16	8

Table 33. Items Ranked by Total Number of Correct Responses Made by Grade 2 Subjects on Levels I, II, III, and V - Form B*

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
Alphabetically Abbreviated Words											
IT	24	1	IT	22	1	IT	24	1	DO	23	1
WILL	24	1	DO	21	2	WILL	23	2	IT	23	1
JUST	23	2	AS	19	3	JUST	22	3	WILL	23	1
AS	22	3	FROM	19	3	FROM	21	4	FROM	21	2
DO	22	3	JUST	19	3	AS	20	5	SO	21	2
FROM	22	3	US	19	3	US	20	5	EVERY	20	3
US	22	3	WILL	19	3	DO	19	6	JUST	20	3
SO	20	4	KNOWLEDGE	14	4	SO	15	7	THAT	20	3
KNOWLEDGE	18	5	SO	14	4	KNOWLEDGE	14	8	US	18	4
THAT	18	5	THAT	14	4	EVERY	12	9	KNOWLEDGE	17	5
QUITE	15	6	QUITE	11	5	THAT	12	9	AS	16	6
EVERY	14	7	EVERY	9	6	QUITE	11	10	QUITE	15	7
Full Spelling											
H	24	1	H	23	1	G	24	1	D	24	1
R	24	1	G	22	2	S	23	2	G	24	1
S	24	1	R	22	2	H	22	3	L	24	1
G	23	2	S	21	3	N	22	3	P	24	1
I	23	2	P	20	4	E	21	4	R	24	1
P	22	3	N	19	5	I	21	4	S	24	1
N	21	4	Y	18	6	V	21	4	E	23	2
E	20	5	I	17	7	Y	21	4	H	23	2
Y	20	5	E	15	8	P	20	5	K	23	2
D	19	6	D	13	9	R	20	5	Y	23	2
V	19	6	K	13	9	D	17	6	I	22	3
K	18	7	V	13	9	K	17	6	N	22	3
U	15	8	U	8	10	U	10	7	U	22	3
L	11	9	L	7	11	L	7	8	V	19	4

*N = 24

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Table 33. (continued)

UPPER CELL - WHOLE WORDS

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
OUT	23	1	STILL	21	1	STILL	21	1	THE	22	1
STILL	23	1	THE	21	1	THE	20	2	OUT	20	2
THE	23	1	WHICH	19	2	WITH	20	2	STILL	19	3
WHICH	22	2	WITH	19	2	OUT	19	3	WITH	18	4
WITH	21	3	CHILD	17	3	WHICH	17	4	WHICH	17	5
CHILD	20	4	OUT	17	3	CHILD	15	5	CHILD	16	6

UPPER CELL - PART WORDS

WH	24	1	WH	20	1	ST	22	1	ST	24	1
CH	23	2	ER	19	2	THE	22	1	CH	22	2
ER	23	2	OU	18	3	WH	22	1	THE	22	2
THE	23	2	ST	18	3	CH	21	2	AR	21	3
OU	21	3	THE	18	3	ER	17	3	OU	21	3
ST	21	3	CH	16	4	OW	15	4	OW	20	4
AR	20	4	OW	14	5	AR	13	5	ER	19	5
BLE	20	4	AR	13	6	OU	13	5	WH	17	6
OW	19	5	BLE	13	6	WITH	13	5	BLE	14	7
WITH	17	6	WITH	10	7	BLE	11	6	WITH	14	7

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Table 33. (continued)

LOWER CELL - WHOLE WORDS

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
BE	22	1	WERE	20	1	BE	19	1	IN	22	1
BY	22	1	BE	19	2	WERE	19	1	BE	16	2
WERE	21	2	BY	18	3	BY	18	2	WAS	16	2
IN	17	3	IN	14	4	IN	17	3	WERE	16	2
WAS	11	4	WAS	6	5	WAS	10	4	BY	14	3

LOWER CELL - PART WORDS

Level I			Level II			Level III			Level V		
DD	23	1	DD	21	1	GG	18	1	DD	20	1
GG	22	2	GG	21	1	DD	15	2	EN	20	1
COM	16	3	COM	15	2	COM	15	2	GG	20	1
IN	11	4	CON	7	3	CON	8	3	IN	20	1
CON	10	5	IN	5	4	IN	6	4	BE	18	2
EN	8	6	BE	3	5	BE	4	5	COM	17	3
BE	7	7	EN	3	5	EN	4	5	CON	9	4

(continued on the next page)

Table 33. (continued)

TWO-CELL - WHOLE WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
HERE	23	1	HERE	23	1	HERE	22	1	MOTHER	24	1
NAME	23	1	WORK	22	2	FATHER	21	2	FATHER	24	1
WORK	23	1	NAME	20	3	NAME	20	3	NAME	22	2
FATHER	22	2	THEIR	18	4	WORK	20	3	SOME	22	2
SOME	22	2	FATHER	17	5	TIME	18	4	WORK	21	3
TIME	21	3	SOME	17	5	MANY	17	5	HERE	20	4
MANY	20	4	TIME	15	6	THEIR	16	6	TIME	20	4
THEIR	19	5	YOUNG	13	7	MOTHER	12	7	EVER	17	5
SPIRIT	16	6	MANY	11	8	SOME	12	7	MANY	16	6
QUESTION	16	6	THOSE	11	8	EVER	9	8	YOUNG	15	7
YOUNG	16	6	EVER	10	9	THOSE	9	8	LORD	14	8
LORD	15	7	LORD	10	9	YOUNG	8	9	QUESTION	12	9
THOSE	15	7	MOTHER	10	9	QUESTION	5	10	THEIR	11	10
WHOSE	15	7	SPIRIT	10	9	SPIRIT	4	11	THOSE	8	11
EVER	14	8	QUESTION	9	10	WHOSE	4	11	CHARACTER	5	12
MOTHER	13	9	WHOSE	8	11	LORD	3	12	SPIRIT	3	13
CHARACTER	9	10	CHARACTER	4	12	CHARACTER	2	13	WHOSE	2	14
TWO-CELL - PART WORDS											
ANCE	21	1	ATION	19	1	ANCE	13	1	ONG	12	1
ATION	21	1	ALLY	15	2	ATION	10	2	ENCE	11	2
MENT	20	2	MENT	15	2	ALLY	8	3	ALLY	10	3
SION	18	3	ANCE	13	3	ONG	8	3	ANCE	10	3
ALLY	17	4	ONG	10	4	MENT	5	4	ATION	9	4
ONG	13	5	ENCE	9	5	ENCE	3	5	MENT	6	5
NESS	12	6	SION	9	5	NESS	2	6	NESS	5	6
ENCE	10	7	NESS	7	6	SION	0	7	SION	4	7

(continued on the next page)

Table 33. (continued)

SHORT-FORM WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ALTHOUGH	23	1	TODAY	23	1	SAID	22	1	HIM	21	1
ALTOGETHER	23	1	MUCH	22	2	MUST	21	2	SAID	21	1
DECEIVE	23	1	ABOVE	21	3	ABOVE	20	3	CHILDREN	19	2
MUCH	23	1	ALTOGETHER	21	3	CHILDREN	20	3	TODAY	19	2
O'CLOCK	23	1	MUST	21	3	HIM	20	3	LETTER	18	3
TODAY	23	1	O'CLOCK	21	3	MUCH	20	3	FIRST	17	4
ABOVE	22	2	AFTERWARD	20	4	TODAY	20	3	AGAINST	16	5
CHILDREN	22	2	ALTHOUGH	20	4	LETTER	17	4	BELOW	16	5
LETTER	22	2	CHILDREN	20	4	TONIGHT	17	4	MUCH	16	5
TONIGHT	22	2	DECEIVE	20	4	FIRST	16	5	MUST	16	5
AFTERWARD	21	3	THYSELF	20	4	FRIEND	16	5	FRIEND	16	5
FIRST	21	3	TONIGHT	20	4	ALTHOUGH	14	6	TONIGHT	15	6
MUST	21	3	FIRST	19	5	AFTERWARD	13	7	ABOVE	14	7
NECESSARY	21	3	NECESSARY	19	5	O'CLOCK	13	7	ALMOST	14	7
THYSELF	21	3	HIM	18	6	SUCH	13	7	BEHIND	14	7
FRIEND	20	4	LETTER	18	6	THEMSELVES	13	7	HIMSELF	14	7
HIM	20	4	SAID	17	7	DECEIVE	12	8	YOURSELF	14	7
BEYOND	19	5	THEMSELVES	17	7	HIMSELF	12	8	GREAT	13	8
SAID	19	5	FRIEND	16	8	YOURSELF	12	8	QUICK	13	8
YOURSELF	19	5	SUCH	15	9	QUICK	12	8	HERSELF	12	9
HIMSELF	18	6	HIMSELF	14	10	BELOW	11	9	O'CLOCK	12	9
THEMSELVES	18	6	BENEATH	12	11	NECESSARY	11	9	SUCH	12	9

(concluded on the next page)

Table 33. (concluded)

SHORT-FORM WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
BELOW	17	7	CONCEIVE	12	11	GREAT	10	10	ONESELF	11	10
CONCEIVE	17	7	HERSELF	12	11	HERSELF	10	10	BENEATH	10	11
HERSELF	17	7	QUICK	12	11	ONESELF	10	10	ALTHOUGH	9	12
QUICK	17	7	RECEIVING	12	11	ALTOGETHER	8	11	ALTOGETHER	8	13
YOURSELVES	17	7	YOURSELF	12	11	BEHIND	8	11	DECEIVE	8	13
ONESELF	16	8	YOURSELVES	12	11	THYSELF	8	11	NECESSARY	8	13
SUCH	16	8	ONESELF	11	12	CONCEIVE	7	12	THEMSELVES	8	13
ALMOST	15	9	ALMOST	10	13	BENEATH	6	13	AFTERWARD	7	14
BENEATH	15	9	BEHIND	10	13	YOURSELVES	6	13	BEYOND	7	14
DECLARING	15	9	BELOW	10	13	RECEIVING	4	14	YOURSELVES	7	14
RECEIVING	15	9	BEYOND	10	13	ALMOST	3	15	CONCEIVE	5	15
OURSELVES	14	10	DECLARING	10	13	BEYOND	3	15	OURSELVES	5	15
PERCEIVING	14	10	PERCEIVING	8	14	REJOICING	3	15	THYSELF	5	15
BEHIND	13	11	REJOICING	8	14	OURSELVES	2	16	RECEIVING	3	16
GREAT	13	11	GREAT	7	15	DECLARING	1	17	DECLARING	2	17
REJOICING	13	11	OURSELVES	7	15	AGAINST	0	18	PERCEIVING	2	17
AGAINST	9	12	AGAINST	6	16	PERCEIVING	0	18	REJOICING	2	17

Table 34. Items Ranked by Total Number of Correct Responses Made by Subjects in Grade 3 on Levels I, II, III, and V - Form B*

Alphabetically Abbreviated Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DO	24	1	DO	24	1	IT	24	1	DO	24	1
JUST	24	1	FROM	24	1	DO	23	2	JUST	23	2
IT	24	1	WILL	24	1	JUST	23	2	IT	23	2
FROM	24	1	IT	23	2	FROM	23	2	WILL	23	2
AS	24	1	JUST	22	3	WILL	22	3	US	22	3
WILL	24	1	US	21	4	SO	21	4	SO	22	3
US	23	2	AS	21	4	AS	21	4	FROM	22	3
KNOWLEDGE	21	3	SO	20	5	KNOWLEDGE	19	5	AS	22	3
SO	21	3	KNOWLEDGE	17	6	US	19	5	THAT	21	4
QUITE	20	4	THAT	16	7	THAT	19	5	EVERY	20	5
THAT	17	5	EVERY	13	8	EVERY	14	6	QUITE	17	6
EVERY	15	6	QUITE	12	9	QUITE	13	7	KNOWLEDGE	12	7

*N = 24

(continued on the next page)

Table 34. (continued)

Full Spelling

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
H	24	1	H	23	1	I	24	1	I	24	1
R	24	1	S	23	1	G	24	1	K	24	1
N	23	2	V	22	2	H	23	2	D	24	1
Y	23	2	Y	21	3	P	23	2	H	24	1
P	23	2	R	21	3	N	22	3	L	24	1
S	23	2	I	20	4	S	22	3	N	24	1
E	22	3	N	20	4	E	21	4	V	24	1
I	22	3	E	19	5	V	21	4	Y	24	1
V	22	3	G	19	5	Y	21	4	P	24	1
G	21	4	P	19	5	R	20	5	R	24	1
K	18	5	K	14	6	K	17	6	S	24	1
D	17	6	L	13	7	D	14	7	E	23	2
L	17	6	D	12	8	L	14	7	J	23	2
U	15	7	U	11	9	U	12	8	G	23	2

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Table 34. (continued)

Upper Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
WHICH	24	1	WHICH	24	1	THE	22	1	STILL	22	1
THE	24	1	WITH	24	1	STILL	20	2	THE	22	1
WITH	24	1	THE	23	2	CHILD	20	2	OUT	22	1
OUT	24	1	OUT	23	2	OUT	20	2	CHILD	21	2
STILL	23	2	STILL	21	3	WHICH	19	3	WHICH	19	3
CHILD	20	3	CHILD	16	4	WITH	19	3	WITH	18	4

Upper Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ST	24	1	CH	22	1	WH	23	1	ST	24	1
CH	24	1	OU	22	1	CH	22	2	CH	24	1
THE	23	2	ST	21	2	THE	22	2	AR	24	1
OW	23	2	WH	21	2	ER	22	2	ER	24	1
WH	23	2	ER	21	2	ST	20	3	OW	23	2
OU	23	2	THE	20	3	OW	20	3	THE	22	3
ER	22	3	OW	20	3	AR	19	4	WH	22	3
BLE	21	4	BLE	18	4	OU	19	4	BLE	21	4
WITH	19	5	WITH	18	4	BLE	16	5	WITH	20	5
AR	18	6	AR	12	5	WITH	15	6	OU	20	5

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[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Table 34. (continued)

Lower Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
BY	24	1	BY	22	1	WERE	21	1	IN	21	1
BE	23	2	BE	21	2	BY	21	1	BE	18	2
WERE	20	3	WERE	16	3	IN	18	2	WAS	17	3
WAS	13	4	IN	11	4	BE	14	3	WERE	17	3
IN	12	5	WAS	8	5	WAS	11	4	BY	16	4

Lower Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DD	24	1	DD	24	1	DD	23	1	EN	24	1
GG	23	2	GG	21	2	GG	22	2	IN	24	1
COM	19	3	COM	13	3	COM	17	3	COM	20	2
CON	14	4	CON	11	4	CON	11	4	DD	20	2
BE	11	5	BE	6	5	IN	11	4	BE	19	3
IN	10	6	IN	6	5	BE	7	5	GG	19	3
EN	8	7	EN	2	6	EN	6	6	CON	15	4

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[illegible]

[illegible]			[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]			[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 34. (continued)

Two Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
FATHER	24	1	NAME	23	1	FATHER	22	1	MOTHER	24	1
NAME	24	1	HERE	23	1	NAME	22	1	FATHER	24	1
THEIR	24	1	FATHER	22	2	WORK	22	1	TIME	23	2
SOME	23	2	SOME	22	2	HERE	22	1	NAME	22	3
WORK	23	2	THOSE	20	3	TIME	20	2	MANY	22	3
HERE	23	2	THEIR	20	3	SOME	20	2	WORK	22	3
THOSE	22	3	TIME	19	4	THEIR	19	3	HERE	22	3
SPIRIT	21	4	WORK	19	4	THOSE	16	4	EVER	20	4
MANY	21	4	MANY	17	5	MANY	15	5	YOUNG	20	4
TIME	21	4	YOUNG	16	6	MOTHER	13	6	SOME	19	5
WHOSE	21	4	LORD	15	7	YOUNG	12	7	QUESTION	15	6
YOUNG	20	5	MOTHER	14	8	WHOSE	11	8	THEIR	15	6
LORD	19	6	SPIRIT	14	8	EVER	10	9	LORD	11	7
EVER	18	7	EVER	12	9	LORD	9	10	THOSE	10	8
MOTHER	16	8	WHOSE	12	9	SPIRIT	7	11	SPIRIT	8	9
QUESTION	16	8	QUESTION	12	9	QUESTION	5	12	CHARACTER	6	10
CHARACTER	13	9	CHARACTER	5	10	CHARACTER	4	13	WHOSE	5	11

(continued on the next page)

Table 34. (continued)

Two Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ANCE	23	1	ATION	19	1	ALLY	20	1	ANCE	17	1
ATION	23	1	ALLY	19	1	ATION	17	2	ONG	17	1
ALLY	21	2	ANCE	18	2	ANCE	16	3	ENCE	15	2
MENT	21	2	MENT	17	3	MENT	13	4	ALLY	10	3
ONG	20	3	SION	17	3	ONG	10	5	ATION	10	3
SION	20	3	ONG	16	4	ENCE	5	6	MENT	10	3
NESS	15	4	NESS	8	5	SION	4	7	NESS	9	4
ENCE	11	5	ENCE	7	6	NESS	2	8	SION	5	5

Short Form Words

ALTHOUGH	24	1	ABOVE	23	1	THEMSELVES	22	1	SAID	24	1
DECEIVE	24	1	HIM	23	1	LETTER	22	1	CHILDREN	24	1
O'CLOCK	24	1	TONIGHT	23	1	FIRST	22	1	FRIEND	23	2
LETTER	24	1	CHILDREN	23	1	FRIEND	22	1	HIM	23	2
MUCH	24	1	MUST	23	1	MUST	22	1	TODAY	22	3
CHILDREN	24	1	FRIEND	23	1	CHILDREN	22	1	LETTER	21	4
TODAY	24	1	ALTOGETHER	23	1	TONIGHT	22	1	BEHIND	21	4
ALTOGETHER	24	1	AFTERWARD	23	1	TODAY	22	1	ABOVE	20	5
HIM	24	1	THYSELF	22	2	MUCH	21	2	TONIGHT	20	5
AFTERWARD	24	1	TODAY	22	2	ABOVE	21	2	MUCH	20	5
THYSELF	23	2	LETTER	22	2	HIM	20	3	MUST	20	5
ABOVE	23	2	ALTHOUGH	21	3	ALTHOUGH	20	3	GREAT	20	5
TONIGHT	23	2	SAID	21	3	AFTERWARD	20	3	HIMSELF	20	5

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Table 34. (concluded)

Short Form Words (Continued)

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
SAID	23	2	THEMSELVES	21	3	SAID	19	4	AGAINST	19	6
FRIEND	23	2	NECESSARY	21	3	O'CLOCK	19	4	YOURSELF	19	6
FIRST	23	2	DECEIVE	20	4	DECEIVE	18	5	ALMOST	19	6
MUST	23	2	FIRST	20	4	SUCH	18	5	SUCH	19	6
NECESSARY	23	2	MUCH	20	4	YOURSELF	17	6	O'CLOCK	18	7
BELOW	22	3	O'CLOCK	19	5	ONESELF	17	6	BELOW	18	7
THEMSELVES	22	3	HIMSELF	19	5	NECESSARY	16	7	FIRST	18	7
QUICK	21	4	ONESELF	18	6	GREAT	16	7	HERSELF	18	7
HIMSELF	21	4	QUICK	18	6	QUICK	15	8	QUICK	17	8
ONESELF	20	5	YOURSELF	17	7	ALTOGETHER	15	8	DECEIVE	12	9
SUCH	20	5	SUCH	17	7	YOURSELVES	15	8	YOURSELVES	12	9
GREAT	19	6	YOURSELF	17	7	THYSELF	14	9	BENEATH	12	9
YOURSELF	19	6	BELOW	16	8	BELOW	14	9	ONESELF	11	10
YOURSELVES	19	6	GREAT	16	8	HIMSELF	14	9	ALTOGETHER	11	10
BEYOND	16	7	RECEIVING	15	9	HERSELF	12	10	THEMSELVES	10	11
OURSELVES	16	7	BEHIND	13	10	ALMOST	11	11	OURSELVES	9	12
BENEATH	16	7	HERSELF	13	10	BEHIND	10	12	AFTERWARD	9	12
ALMOST	16	7	BEYOND	12	11	OURSELVES	10	12	ALTHOUGH	9	12
BEHIND	16	7	BENEATH	11	12	BEYOND	9	13	BEYOND	9	12
RECEIVING	16	7	REJOICING	10	13	CONCEIVE	9	13	THYSELF	5	13
PERCEIVING	15	8	ALMOST	10	13	BENEATH	8	14	NECESSARY	5	13
DECLARING	15	8	CONCEIVE	9	14	RECEIVING	8	14	CONCEIVE	4	14
HERSELF	15	8	OURSELVES	8	15	DECLARING	7	15	RECEIVING	4	14
REJOICING	14	9	DECLARING	8	15	AGAINST	7	15	DECLARING	3	15
CONCEIVE	13	10	PERCEIVING	8	15	PERCEIVING	7	15	REJOICING	2	16
AGAINST	12	11	AGAINST	6	16	REJOICING	5	16	PERCEIVING	2	16

Table 35. Items Ranked by Total Number of Correct Responses Made by Subjects in Grade 4 on Levels I, II, III, and V - Form B*

Alphabetically Abbreviated Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
WILL	24	1	DO	24	1	JUST	24	1	WILL	24	1
AS	24	1	JUST	24	1	IT	24	1	FROM	24	1
FROM	24	1	FROM	24	1	FROM	24	1	IT	24	1
SO	24	1	IT	24	1	SO	23	2	US	24	1
IT	24	1	AS	23	2	AS	23	2	SO	23	2
JUST	24	1	WILL	23	2	DO	23	2	AS	23	2
DO	24	1	SO	23	2	WILL	22	3	THAT	23	2
US	23	2	KNOWLEDGE	22	3	THAT	21	4	DO	23	2
KNOWLEDGE	23	2	US	21	4	QUITE	21	4	JUST	22	3
THAT	22	3	THAT	18	5	US	21	4	QUITE	22	3
QUITE	21	4	QUITE	18	5	EVERY	20	5	EVERY	21	4
EVERY	17	5	EVERY	10	6	KNOWLEDGE	18	6	KNOWLEDGE	17	5

N = 24

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Table 35. (continued)

Full Spelling

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
G	24	1	H	24	1	E	24	1	E	24	1
P	24	1	V	23	2	I	24	1	I	24	1
V	24	1	R	23	2	G	24	1	K	24	1
H	24	1	S	22	3	P	24	1	D	24	1
S	24	1	G	22	3	Y	24	1	U	24	1
K	23	2	Y	21	4	H	24	1	G	24	1
Y	23	2	P	20	5	S	24	1	H	24	1
N	23	2	E	20	5	N	23	2	L	24	1
R	23	2	N	20	5	V	23	2	N	24	1
E	22	3	K	19	6	R	23	2	V	24	1
L	21	4	L	18	7	L	20	3	Y	24	1
I	21	4	I	18	7	D	20	3	P	24	1
D	21	4	D	17	8	K	19	4	R	24	1
U	19	5	U	11	9	U	13	5	S	24	1

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Table 35. (continued)

Upper Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
OUT	24	1	OUT	24	1	WHICH	23	1	THE	24	1
WITH	24	1	WITH	24	1	OUT	23	1	OUT	23	2
THE	24	1	THE	24	1	WITH	23	1	WITH	23	2
WHICH	24	1	WHICH	24	1	THE	22	2	CHILD	23	2
STILL	21	2	STILL	19	2	STILL	21	3	WHICH	22	3
CHILD	20	3	CHILD	18	3	CHILD	19	4	STILL	22	3

Upper Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ST	24	1	ST	23	1	THE	24	1	BLE	24	1
CH	24	1	CH	23	1	WH	24	1	AR	24	1
THE	24	1	THE	23	1	ER	23	2	ST	23	2
WH	24	1	WH	23	1	ST	23	2	CH	23	2
OW	23	2	OW	22	2	CH	22	3	THE	23	2
OU	23	2	OU	22	2	AR	22	3	OW	23	2
ER	23	2	ER	22	2	OU	22	3	ER	23	2
WITH	22	3	WITH	19	3	BLE	21	4	WITH	22	3
BLE	21	4	AR	19	3	OW	20	5	OU	22	3
AR	19	5	BLE	18	4	WITH	14	6	WH	21	4

(continued on the next page)

Table 35. (continued)

Lower Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
BY	24	1	BY	24	1	BY	23	1	WAS	24	1
WERE	23	2	WERE	20	2	WERE	21	2	IN	23	2
BE	21	3	BE	20	2	WAS	18	3	WERE	22	3
IN	18	4	IN	15	3	IN	18	3	BE	21	4
WAS	16	5	WAS	13	4	BE	14	4	BY	17	5

Lower Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DD	24	1	DD	23	1	GG	24	1	BE	24	1
GG	23	2	GG	20	2	DD	23	2	DD	24	1
COM	19	3	COM	17	3	COM	19	3	GG	24	1
CON	17	4	IN	14	4	IN	17	4	IN	24	1
BE	16	5	BE	11	5	BE	15	5	EN	23	2
IN	15	6	CON	11	5	CON	11	6	CON	23	2
EN	10	7	EN	6	6	EN	10	7	COM	21	3

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[illegible]

[illegible]			[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]			[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Table 35. (continued)

Two Cell Whole Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
HERE	24	1	WORK	24	1	NAME	24	1	HERE	24	1
THEIR	24	1	FATHER	24	1	HERE	23	2	MOTHER	24	1
WORK	24	1	NAME	23	2	SOME	23	2	FATHER	24	1
FATHER	24	1	THEIR	23	2	FATHER	23	2	NAME	24	1
NAME	24	1	HERE	23	2	WORK	22	3	TIME	24	1
SOME	23	2	TIME	22	3	TIME	22	3	WORK	23	2
WHOSE	23	2	SOME	21	4	MANY	21	4	SOME	23	2
MANY	23	2	THOSE	21	4	THEIR	21	4	YOUNG	22	3
TIME	23	2	WHOSE	20	5	THOSE	20	5	EVER	22	3
THOSE	23	2	MANY	20	5	YOUNG	18	6	MANY	22	3
YOUNG	23	2	YOUNG	18	6	CHARACTER	18	6	THEIR	21	4
QUESTION	21	3	QUESTION	17	7	LORD	18	6	LORD	20	5
EVER	20	4	LORD	17	7	WHOSE	17	7	QUESTION	19	6
LORD	20	4	SPIRIT	16	8	EVER	16	8	THOSE	16	7
SPIRIT	20	4	EVER	14	9	QUESTION	15	9	SPIRIT	12	8
CHARACTER	18	5	MOTHER	13	10	MOTHER	14	10	CHARACTER	11	9
MOTHER	18	5	CHARACTER	12	11	SPIRIT	12	11	WHOSE	10	10

(continued on the next page)

Table 35. (continued)

Two Cell Part Words

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ATION	24	1	ANCE	21	1	ANCE	23	1	ONG	20	1
ALLY	23	2	MENT	20	2	ATION	22	2	ALLY	19	2
ANCE	23	2	ATION	19	3	ALLY	21	3	ATION	18	3
MENT	21	3	ALLY	18	4	MENT	16	4	ANCE	18	3
ONG	17	4	ONG	13	5	ONG	16	4	ENCE	16	4
SION	17	4	ENCE	10	6	ENCE	14	5	MENT	16	4
NESS	17	4	NESS	10	6	SION	13	6	NESS	14	5
ENCE	15	5	SION	10	6	NESS	7	7	SION	10	6

Short Form Words

CHILDREN	24	1	LETTER	24	1	SAID	24	1	GREAT	24	1
O'CLOCK	24	1	ABOVE	24	1	TODAY	24	1	MUST	24	1
GREAT	24	1	AFTERWARD	24	1	TONIGHT	24	1	MUCH	24	1
FRIEND	24	1	DECEIVE	24	1	MUST	23	2	TODAY	24	1
HIMSELF	24	1	THYSELF	24	1	FRIEND	23	2	BEHIND	24	1
THEMSELVES	24	1	ALTHOUGH	24	1	HIMSELF	23	2	ABOVE	24	1
ABOVE	24	1	CHILDREN	23	2	ABOVE	23	2	HIM	24	1
TONIGHT	24	1	O'CLOCK	23	2	HIM	23	2	TONIGHT	24	1
ALTOGETHER	24	1	GREAT	23	2	AFTERWARD	23	2	BELOW	24	1
SUCH	24	1	FRIEND	23	2	FIRST	22	3	SAID	23	2
YOURSELVES	24	1	FIRST	23	2	LETTER	22	3	CHILDREN	23	2
AFTERWARD	24	1	MUCH	23	2	QUICK	22	3	AGAINST	23	2
DECEIVE	24	1	TODAY	23	2	THEMSELVES	22	3	FRIEND	23	2

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[illegible]

[illegible]			[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Table 35. (concluded)

Short Form Words (Continued)

Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
THYSELF	24	1	HIMSELF	23	2	NECESSARY	22	3	ALMOST	23	2
ALTHOUGH	24	1	TONIGHT	23	2	ALTHOUGH	22	3	HIMSELF	23	2
FIRST	24	1	ALTOGETHER	23	2	CHILDREN	21	4	FIRST	22	3
YOURSELF	24	1	SUCH	23	2	HERSELF	21	4	YOURSELF	22	3
LETTER	24	1	YOURSELVES	23	2	MUCH	21	4	LETTER	22	3
MUCH	24	1	NECESSARY	23	2	DECEIVE	21	4	HERSELF	22	3
TODAY	24	1	SAID	22	3	O'CLOCK	20	5	SUCH	22	3
SAID	23	2	YOURSELF	22	3	YOURSELF	20	5	O'CLOCK	21	4
MUST	23	2	HIM	22	3	ALTOGETHER	20	5	BENEATH	21	4
HERSELF	23	2	BELOW	22	3	YOURSELVES	20	5	QUICK	20	5
QUICK	23	2	QUICK	21	4	THYSELF	20	5	ONESELF	20	5
HIM	23	2	ONESELF	21	4	BELOW	19	6	ALTHOUGH	20	5
BELOW	23	2	MUST	20	5	BEYOND	19	6	AFTERWARD	18	6
NECESSARY	23	2	THEMSELVES	20	5	OURSELVES	18	7	YOURSELVES	17	7
ONESELF	23	2	BEYOND	19	6	ONESELF	18	7	ALTOGETHER	16	8
OURSELVES	22	3	HERSELF	18	7	SUCH	17	8	NECESSARY	16	8
REJOICING	22	3	OURSELVES	17	8	GREAT	16	9	BEYOND	16	8
RECEIVING	22	3	RECEIVING	17	8	ALMOST	16	9	OURSELVES	15	9
BEYOND	22	3	CONCEIVE	17	8	BENEATH	16	9	DECEIVE	15	9
PERCEIVING	21	4	BENEATH	16	9	RECEIVING	15	10	THYSELF	15	9
CONCEIVE	21	4	PERCEIVING	14	10	BEHIND	14	11	CONCEIVE	15	9
BENEATH	20	5	BEHIND	13	11	REJOICING	13	12	THEMSELVES	14	10
BEHIND	18	6	DECLARING	13	11	DECLARING	12	13	RECEIVING	11	11
DECLARING	18	6	REJOICING	13	11	PERCEIVING	12	13	DECLARING	9	12
AGAINST	16	7	AGAINST	11	12	CONCEIVE	12	13	PERCEIVING	9	12
ALMOST	16	7	ALMOST	10	13	AGAINST	7	14	REJOICING	8	13

Table 36. Items Ranked by Total Number of Correct Responses Made by Grade 5 Subjects on Levels I, II, III, and V - Form B*

Alphabetically Abbreviated Words											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
DO	24	1	DO	24	1	AS	24	1	AS	24	1
FROM	24	1	FROM	24	1	FROM	24	1	QUITE	24	1
IT	24	1	JUST	24	1	IT	24	1	SO	24	1
JUST	24	1	WILL	24	1	JUST	24	1	WILL	24	1
WILL	24	1	IT	23	2	DO	23	2	DO	23	2
AS	23	2	AS	22	3	SO	23	2	FROM	23	2
KNOWLEDGE	23	2	US	22	3	WILL	23	2	JUST	23	2
SO	23	2	KNOWLEDGE	21	4	THAT	22	3	IT	22	3
THAT	23	2	THAT	21	4	US	22	3	THAT	22	3
US	23	2	SO	19	5	EVERY	21	4	US	22	3
QUITE	20	3	QUITE	17	6	KNOWLEDGE	21	4	EVERY	21	4
EVERY	18	4	EVERY	12	7	QUITE	19	5	KNOWLEDGE	20	5
Full Spelling											
E	24	1	H	24	1	G	24	1	E	24	1
H	24	1	S	24	1	H	24	1	I	24	1
N	24	1	P	23	2	I	24	1	H	24	1
R	24	1	R	23	2	S	24	1	K	24	1
S	24	1	Y	23	2	V	24	1	L	24	1
Y	24	1	N	22	3	D	23	2	N	24	1
G	23	2	E	21	4	N	23	2	P	24	1
P	23	2	I	21	4	P	23	2	U	24	1
V	23	2	V	21	4	R	23	2	Y	24	1
I	22	3	G	20	5	Y	23	2	D	23	2
K	22	3	K	19	6	L	22	3	G	23	2
D	21	4	L	18	7	E	21	4	V	23	2
U	20	5	D	16	8	K	21	4	R	23	2
L	19	6	U	14	9	U	18	5	S	23	2

*N = 24

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Table 36. (continued)

UPPER-CELL - WHOLE WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
OUT	24	1	THE	24	1	OUT	24	1	THE	24	1
THE	24	1	WITH	23	2	WHICH	23	2	CHILD	23	2
WHICH	24	1	OUT	22	3	THE	22	3	OUT	23	2
STILL	23	2	WHICH	21	4	STILL	21	4	WITH	23	2
WITH	23	2	CHILD	20	5	WITH	21	4	STILL	22	3
CHILD	21	3	STILL	19	6	CHILD	20	5	WHICH	22	3
UPPER-CELL - PART WORDS											
ER	24	1	ER	23	1	OU	24	1	AR	24	1
ST	24	1	ST	23	1	WH	24	1	BLE	24	1
THE	24	1	THE	23	1	AR	23	2	ER	24	1
WH	24	1	WH	23	1	CH	23	2	OU	24	1
BLE	22	2	BLE	22	2	ER	23	2	WH	24	1
CH	22	2	CH	22	2	THE	23	2	CH	23	2
OU	22	2	WITH	21	3	BLE	22	3	OW	23	2
WITH	22	2	AR	20	4	ST	22	3	ST	23	2
AR	21	3	OU	20	4	OW	21	4	THE	22	3
OW	21	3	OW	19	5	WITH	19	5	WITH	22	3

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Table 36. (continued)

LOWER-CELL - WHOLE WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
BY	24	1	BY	24	1	BY	24	1	BE	22	1
WERE	24	1	WERE	18	2	BE	22	2	BY	22	1
BE	21	2	BE	15	3	WERE	20	3	IN	22	1
IN	16	3	IN	10	4	IN	16	4	WERE	22	1
WAS	16	3	WAS	9	5	WAS	13	5	WAS	20	2
LOWER-CELL - PART WORDS											
DD	24	1	DD	24	1	DD	24	1	BE	24	1
COM	21	2	GG	20	2	GG	23	2	EN	23	2
GG	21	2	COM	18	3	CON	21	3	GG	23	2
CON	19	3	CON	12	4	IN	21	3	COM	22	3
IN	17	4	IN	13	5	COM	18	4	DD	22	3
BE	14	5	EN	9	6	BE	15	5	IN	22	3
EN	13	6	BE	8	7	EN	14	6	CON	19	4

(continued on the next page)

Table 36. (continued)

TWO-CELL - WHOLE WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
FATHER	24	1	HERE	24	1	FATHER	24	1	EVER	24	1
HERE	24	1	NAME	24	1	NAME	24	1	MOTHER	24	1
NAME	24	1	FATHER	23	2	SOME	23	2	FATHER	24	1
SOME	24	1	SOME	23	2	TIME	23	2	HERE	24	1
THEIR	23	2	THEIR	21	3	WORK	23	2	NAME	24	1
TIME	23	2	WHOSE	21	3	HERE	22	3	SOME	24	1
WORK	23	2	WORK	21	3	MANY	22	3	TIME	24	1
MANY	22	3	MANY	20	4	THEIR	22	3	QUESTION	24	1
SPIRIT	22	3	SPIRIT	20	4	EVER	20	4	LORD	23	2
THOSE	22	3	YOUNG	20	4	LORD	20	4	MANY	23	2
WHOSE	22	3	LORD	19	5	WHOSE	20	4	WORK	23	2
YOUNG	22	3	THOSE	19	5	YOUNG	20	4	YOUNG	23	2
LORD	20	4	TIME	19	5	QUESTION	19	5	THEIR	20	3
QUESTION	20	4	QUESTION	18	6	SPIRIT	19	5	SPIRIT	18	4
CHARACTER	19	5	EVER	15	7	THOSE	19	5	CHARACTER	17	5
EVER	18	6	CHARACTER	13	8	MOTHER	18	6	THOSE	14	6
MOTHER	18	6	MOTHER	11	9	CHARACTER	13	7	WHOSE	13	7
TWO-CELL - PART WORDS											
ANCE	24	1	ANCE	24	1	ATION	24	1	ALLY	21	1
ATION	24	1	ATION	24	1	ALLY	23	2	ONG	21	1
ALLY	23	2	ALLY	22	2	ANCE	22	3	ANCE	20	2
MENT	23	2	MENT	20	3	MENT	21	4	ATION	20	2
NESS	20	3	SION	17	4	ONG	21	4	MENT	19	3
ONG	20	3	NESS	16	5	SION	17	5	ENCE	18	4
ENCE	19	4	ONG	16	5	ENCE	12	6	NESS	17	5
SION	19	4	ENCE	10	6	NESS	10	7	SION	12	6

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Table 36. (continued)

SHORT-FORM WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ABOVE	24	1	ABOVE	24	1	AFTERWARD	24	1	HIM	24	1
AFTERWARD	24	1	AFTERWARD	24	1	DECEIVE	24	1	QUICK	24	1
ALTHOUGH	24	1	ALTHOUGH	24	1	ABOVE	23	2	SAID	24	1
ALTOGETHER	24	1	DECEIVE	24	1	BELOW	23	2	TODAY	24	1
CHILDREN	24	1	MUCH	24	1	FRIEND	23	2	TONIGHT	24	1
DECEIVE	24	1	NECESSARY	24	1	LETTER	23	2	AGAINST	23	2
HIM	24	1	SAID	24	1	MUCH	23	2	CHILDREN	23	2
HIMSELF	24	1	TODAY	24	1	SAID	23	2	FIRST	23	2
MUCH	24	1	TONIGHT	24	1	THYSELF	23	2	GREAT	23	2
MUST	24	1	ALTOGETHER	23	2	TODAY	23	2	HERSELF	23	2
NECESSARY	24	1	CHILDREN	23	2	TONIGHT	23	2	HIMSELF	23	2
O'CLOCK	24	1	FIRST	23	2	ALTHOUGH	22	3	MUCH	23	2
SAID	24	1	HIM	23	2	CHILDREN	22	3	MUST	23	2
TODAY	24	1	HIMSELF	23	2	FIRST	22	3	NECESSARY	23	2
THYSELF	24	1	LETTER	23	2	GREAT	22	3	SUCH	23	2
TONIGHT	24	1	MUST	23	2	HIMSELF	22	3	ABOVE	22	3
BELOW	23	2	FRIEND	22	3	NECESSARY	22	3	AFTERWARD	22	3
FIRST	23	2	THYSELF	22	3	QUICK	22	3	ALMOST	22	3
FRIEND	23	2	YOURSELF	22	3	YOURSELF	22	3	BELOW	22	3
LETTER	23	2	BELOW	21	4	YOURSELVES	22	3	BENEATH	22	3

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Table 36. (concluded)

SHORT-FORM WORDS											
Level I			Level II			Level III			Level V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
ONESELF	23	2	YOURSELVES	21	4	ALTOGETHER	21	4	FRIEND	22	3
OURSELVES	23	2	O'CLOCK	20	5	HERSELF	21	4	LETTER	22	3
SUCH	23	2	QUICK	20	5	HIM	21	4	YOURSELF	22	3
THEMSELVES	23	2	THEMSELVES	20	5	ONESELF	21	4	ALTHOUGH	21	4
YOURSELF	23	2	CONCEIVE	19	6	MUST	20	5	BEHIND	21	4
YOURSELVES	23	2	GREAT	19	6	O'CLOCK	20	5	O'CLOCK	21	4
CONCEIVE	22	3	ONESELF	19	6	SUCH	20	5	CONCEIVE	20	5
GREAT	22	3	OURSELVES	19	6	THEMSELVES	20	5	DECEIVE	20	5
QUICK	22	3	REJOICING	19	6	REJOICING	19	6	ONESELF	19	6
HERSELF	21	4	SUCH	19	6	BEYOND	18	7	BEYOND	18	7
RECEIVING	21	4	BENEATH	18	7	OURSELVES	18	7	YOURSELVES	18	7
BEHIND	20	5	BEYOND	18	7	CONCEIVE	17	8	DECLARING	17	8
BENEATH	20	5	RECEIVING	18	7	PERCEIVING	17	8	THEMSELVES	17	8
BEYOND	20	5	ALMOST	17	8	BEHIND	16	9	THYSELF	17	8
REJOICING	20	5	BEHIND	17	8	DECLARING	16	9	OURSELVES	16	9
DECLARING	19	6	HERSELF	17	8	RECEIVING	16	9	RECEIVING	15	10
PERCEIVING	19	6	DECLARING	16	9	BENEATH	15	10	REJOICING	15	10
AGAINST	18	7	AGAINST	14	10	ALMOST	14	11	ALTOGETHER	14	11
ALMOST	18	7	PERCEIVING	14	10	AGAINST	13	12	PERCEIVING	14	11

Table 37. Items Ranked by Total Number of Correct Responses Made by Subjects in Grades 2, 3, 4, and 5 on Level IV - Form A*

Alphabetically Abbreviated Words											
Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
IT	24	1	Will	22	1	WILL	24	1	SO	24	1
CAN	23	2	IT	21	2	CAN	23	2	BUT	23	2
WILL	23	2	AS	20	3	FROM	23	2	CAN	23	2
BUT	21	3	CAN	20	3	AS	22	3	FROM	23	2
MORE	21	3	MORE	20	3	BUT	22	3	MORE	23	2
FROM	20	4	FROM	19	4	IT	22	3	THAT	23	2
SO	19	5	JUST	19	4	SO	22	3	WILL	23	2
AS	18	6	SO	19	4	THAT	22	3	AS	22	3
JUST	18	6	THAT	19	4	MORE	21	4	IT	22	3
THAT	18	6	BUT	17	5	JUST	20	5	JUST	21	4
EVERY	16	7	EVERY	15	6	EVERY	18	6	QUITE	19	5
QUITE	13	8	QUITE	13	7	QUITE	17	7	EVERY	17	6
Full Spelling											
C	24	1	B	24	1	S	24	1	A	24	1
S	24	1	C	24	1	T	24	1	B	24	1
W	24	1	S	24	1	W	24	1	C	24	1
X	24	1	T	24	1	X	24	1	E	24	1
B	23	2	W	24	1	Z	24	1	F	24	1
T	23	2	X	24	1	B	23	2	J	24	1
A	22	3	Z	24	1	C	23	2	S	24	1
F	22	3	A	23	2	F	23	2	T	24	1
M	22	3	F	23	2	M	23	2	W	24	1
O	21	4	J	23	2	O	23	2	X	24	1
E	20	5	M	23	2	Q	23	2	M	23	2
J	20	5	O	22	3	E	22	3	Q	23	2
Z	19	6	E	21	4	J	22	3	Z	23	2
Q	14	7	Q	19	5	A	21	4	O	22	3

*N = 24

(continued on the next page)

Table 37. (continued)

Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
UPPER-CELL - WHOLE WORDS											
AND	24	1	AND	24	1	AND	24	1	AND	24	1
FOR	21	2	FOR	24	1	FOR	24	1	FOR	23	2
THE	21	2	THE	23	2	THE	23	2	ED	22	3
THIS	21	2	THIS	20	3	THIS	22	3	THE	21	4
OF	17	3	ED	19	4	OF	20	4	OF	20	5
ED	15	4	OF	18	5	STILL	19	5	SHALL	20	5
STILL	14	5	STILL	15	6	ED	18	6	STILL	18	6
SHALL	11	6	SHALL	14	7	SHALL	17	7	THIS	18	6
UPPER-CELL - PART WORDS											
TH	19	1	TH	23	1	TH	23	1	GH	23	1
ST	16	2	SH	19	2	SH	21	2	TH	22	2
GH	13	3	ST	18	3	ST	20	3	SH	20	3
SH	13	3	GH	15	4	GH	19	4	ING	17	4
ING	10	4	ING	12	5	ING	19	4	ST	17	4

(continued on the next page)

Table 37. (continued)

Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
LOWER-CELL - WHOLE WORDS											
TO	20	1	TO	23	1	TO	22	1	TO	23	1
IN	13	2	IN	17	2	IN	18	2	IN	18	2
ENOUGH	10	3	WAS	16	3	WAS	15	3	ENOUGH	14	3
WAS	7	4	ENOUGH	9	4	ENOUGH	13	4	WAS	13	4
HIS	4	5	HIS	4	5	HIS	12	5	HIS	11	5
LOWER-CELL - PART WORDS											
COM	11	1	IN	18	1	COM	21	1	IN	22	1
EA	11	1	EA	14	2	EA	20	2	EA	21	2
IN	10	2	BB	13	3	IN	20	2	COM	19	3
FF	8	3	COM	12	4	BB	14	3	FF	17	4
BB	7	4	FF	12	4	DIS	14	3	BB	16	5
CC	7	4	CC	7	5	FF	14	3	CC	12	6
DIS	2	5	DIS	7	5	CC	11	4	DIS	12	6

(continued on the next page)

Table 37. (continued)

Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
TWO-CELL - WHOLE WORDS											
MOTHER	24	1	KNOW	24	1	MOTHER	24	1	HAD	24	1
HAD	23	2	ONE	24	1	ONE	24	1	PART	24	1
ONE	23	2	MOTHER	23	2	THERE	24	1	ONE	24	1
DAY	19	3	THERE	23	2	UNDER	24	1	OUGHT	24	1
KNOW	19	3	DAY	22	3	WHERE	24	1	DAY	23	2
WHERE	18	4	RIGHT	22	3	CANNOT	23	2	MOTHER	23	2
CANNOT	17	5	UNDER	21	4	DAY	23	2	THROUGH	23	2
PART	17	5	HAD	20	5	HAD	23	2	WORD	23	2
THERE	16	6	WHERE	20	5	KNOW	23	2	WORLD	23	2
UNDER	16	6	WORD	20	5	PART	23	2	CANNOT	22	3
WORD	16	6	CANNOT	19	6	WORD	23	2	KNOW	22	3
RIGHT	15	7	THROUGH	19	6	THESE	23	2	RIGHT	22	3
UPON	12	8	PART	18	7	RIGHT	22	3	THERE	22	3
WORLD	11	9	UPON	18	7	THROUGH	21	4	THESE	22	3
THESE	10	10	THESE	17	8	WORLD	21	4	UNDER	22	3
THROUGH	10	10	WORLD	17	8	UPON	20	5	UPON	22	3
OUGHT	7	11	OUGHT	13	9	OUGHT	19	6	WHERE	22	3
TWO-CELL - PART WORDS											
FUL	9	1	FUL	11	1	FUL	19	1	FUL	23	1
OUND	9	1	OUND	10	2	ITY	18	2	OUND	20	2
ITY	8	2	OUNT	10	2	TION	17	3	ANCE	17	3
OUNT	7	3	ANCE	8	3	OUNT	16	4	ITY	16	4
TION	6	4	ATION	7	4	ATION	15	5	LESS	16	4
ATION	5	5	TION	7	4	OUND	15	5	SION	16	4
ANCE	4	6	ITY	6	5	ANCE	12	6	ATION	15	5
LESS	4	6	LESS	5	6	LESS	10	7	OUNT	15	5

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Table 37. (continued)

SHORT-FORM WORDS											
Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
YOUR	24	1	ACROSS	24	1	ABOUT	24	1	AFTER	24	1
GOOD	23	2	AGAIN	24	1	ACROSS	24	1	AGAIN	24	1
AGAIN	22	3	GOOD	24	1	AFTER	24	1	BRAILLE	24	1
LITTLE	22	3	SAID	24	1	AFTERNOON	24	1	GOOD	24	1
SAID	22	3	ABOUT	23	2	AGAIN	24	1	ITSELF	24	1
COULD	21	4	BECAUSE	23	2	BEFORE	24	1	LITTLE	24	1
AFTER	20	5	COULD	23	2	BETWEEN	24	1	MYSELF	24	1
WOULD	20	5	LITTLE	23	2	COULD	24	1	PAID	24	1
ABOUT	19	6	WOULD	23	2	GOOD	24	1	SAID	24	1
ITS	18	7	YOUR	23	2	ITS	24	1	TODAY	24	1
ACROSS	17	8	AFTER	22	3	LITTLE	24	1	WOULD	24	1
BEFORE	17	8	ALWAYS	22	3	MYSELF	24	1	YOUR	24	1
TOGETHER	16	9	BEFORE	22	3	SAID	24	1	ABOUT	23	2
ALWAYS	15	10	ITS	22	3	SHOULD	24	1	ACROSS	23	2
BECAUSE	15	10	MYSELF	21	4	TODAY	24	1	AFTERNOON	23	2
MYSELF	15	10	SHOULD	21	4	TOGETHER	24	1	ALREADY	23	2
SHOULD	15	10	AFTERNOON	20	5	TOMORROW	24	1	ALSO	23	2
AFTERNOON	14	11	BESIDE	20	5	WOULD	24	1	ALWAYS	23	2
BRAILLE	14	11	BRAILLE	20	5	YOUR	24	1	BECAUSE	23	2
TODAY	14	11	TODAY	20	5	ALWAYS	23	2	BEFORE	23	2
ITSELF	13	12	TOGETHER	20	5	BECAUSE	23	2	BETWEEN	23	2
TOMORROW	13	12	PERHAPS	19	6	BESIDE	23	2	COULD	23	2
BESIDE	12	13	TOMORROW	19	6	PERHAPS	23	2	DECLARE	23	2

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Table 37. (concluded)

SHORT-FORM WORDS

Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	Right	Rank
BETWEEN	12	13	BETWEEN	18	7	EITHER	22	3	EITHER	23	2
ALSO	10	14	ITSELF	18	7	ITSELF	22	3	ITS	23	2
BLIND	10	14	ALREADY	16	8	NEITHER	22	3	SHOULD	23	2
NEITHER	10	14	EITHER	15	9	BRAILLE	21	4	TOGETHER	23	2
PERHAPS	10	14	NEITHER	15	9	ALREADY	20	5	BESIDE	22	3
PAID	9	15	PAID	15	9	ALSO	20	5	NEITHER	22	3
DECLARE	8	16	ALSO	14	10	PAID	20	5	PERCEIVE	22	3
EITHER	8	16	RECEIVE	14	10	RECEIVE	20	5	PERHAPS	22	3
ALREADY	6	17	BLIND	13	11	DECLARE	19	6	RECEIVE	22	3
RECEIVE	6	17	DECLARE	12	12	REJOICE	13	7	TOMORROW	22	3
PERCEIVE	5	18	PERCEIVE	4	13	BLIND	12	8	BLIND	20	4
ACCORDING	3	19	IMMEDIATE	3	14	PERCEIVE	11	9	ACCORDING	17	5
CONCEIVING	2	20	REJOICE	3	14	ACCORDING	9	10	REJOICE	16	6
DECEIVING	2	20	ACCORDING	2	15	CONCEIVING	9	10	CONCEIVING	13	7
REJOICE	2	20	DECEIVING	2	15	IMMEDIATE	7	11	DECEIVING	13	7
IMMEDIATE	1	21	CONCEIVING	1	16	DECEIVING	6	12	IMMEDIATE	10	8

Table 38. Items Ranked by Total Number of Correct Responses Made by Subjects in Grades 2, 3, 4, and 5 on Level IV - Form B*

Alphabetically Abbreviated Words

Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
GO	21	1	LIKE	24	1	YOU	24	1	DO	23	1
HAVE	21	1	GO	23	2	GO	23	2	LIKE	23	1
LIKE	21	1	NOT	22	3	HAVE	23	2	NOT	23	1
NOT	21	1	YOU	22	3	LIKE	23	2	SO	23	1
YOU	21	1	DO	21	4	PEOPLE	23	2	US	23	1
DO	19	2	HAVE	21	4	DO	22	3	VERY	23	1
PEOPLE	19	2	PEOPLE	21	4	VERY	22	3	YOU	23	1
SO	18	3	VERY	21	4	NOT	21	4	GO	22	2
VERY	18	3	EVERY	20	5	RATHER	21	4	PEOPLE	22	2
US	17	4	SO	20	5	SO	21	4	RATHER	22	2
EVERY	15	5	US	18	6	EVERY	18	5	EVERY	21	3
RATHER	12	6	RATHER	15	7	KNOWLEDGE	18	5	HAVE	20	4
KNOWLEDGE	10	7	KNOWLEDGE	9	8	US	17	6	KNOWLEDGE	20	4

Full Spelling

Grade II			Grade III			Grade IV			Grade V		
G	24	1	G	24	1	D	24	1	G	24	1
L	24	1	L	24	1	G	24	1	L	24	1
H	23	2	D	23	2	H	24	1	N	24	1
R	23	2	E	23	2	L	24	1	P	24	1
S	23	2	H	23	2	N	24	1	S	24	1
Y	23	2	N	23	2	P	24	1	V	24	1
D	22	3	S	23	2	R	24	1	Y	24	1
K	22	3	V	23	2	S	24	1	D	23	2
P	22	3	Y	23	2	U	24	1	H	23	2
N	21	4	P	22	3	V	24	1	R	23	2
V	21	4	R	22	3	Y	24	1	U	23	2
E	20	5	I	20	4	K	23	2	E	22	3
I	19	6	U	20	4	E	22	3	K	21	4
U	19	6	K	19	5	I	19	4	I	20	5

*N = 24

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Table 38. (continued)

UPPER-CELL - WHOLE WORDS

Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
THE	21	1	THE	23	1	THE	24	1	THE	24	1
WITH	15	2	WITH	21	2	OUT	23	2	WITH	23	2
OUT	14	3	OUT	20	3	WITH	22	3	OUT	22	3
STILL	13	4	STILL	15	4	CHILD	18	4	WHICH	21	4
WHICH	10	5	CHILD	14	5	STILL	18	4	CHILD	20	5
CHILD	8	6	WHICH	11	6	WHICH	17	5	STILL	20	5

UPPER-CELL - PART WORDS

Grade II			Grade III			Grade IV			Grade V		
OW	20	1	AR	19	1	AR	24	1	AR	23	1
AR	19	2	CH	19	1	WH	24	1	CH	22	2
OU	17	3	OU	19	1	OW	23	2	OW	22	2
CH	16	4	OW	19	1	OU	22	3	WH	22	2
ST	16	4	WH	18	2	CH	21	4	BLE	20	3
WH	14	5	ST	17	3	BLE	20	5	ER	20	3
BLE	13	6	BLE	15	4	ST	20	5	ST	20	3
ER	10	7	ER	14	5	ER	17	6	OU	19	4

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Table 38. (continued)

LOWER-CELL - WHOLE WORDS											
Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
BY	17	1	BY	24	1	BY	24	1	BY	24	1
BE	12	2	IN	14	2	IN	20	2	BE	20	2
IN	12	2	BE	13	3	BE	19	3	WERE	19	3
WAS	8	3	WERE	11	4	WERE	17	4	IN	18	4
WERE	8	3	WAS	6	5	WAS	14	5	WAS	7	5
LOWER-CELL - PART WORDS											
IN	16	1	BE	19	1	IN	22	1	COM	23	1
EN	14	2	EN	17	2	BE	21	2	IN	23	1
GG	13	3	GG	17	2	COM	21	2	EN	22	2
DD	12	4	IN	17	2	GG	21	2	GG	22	2
BE	11	5	COM	15	3	EN	20	3	BE	21	3
COM	8	6	DD	15	3	CON	18	4	DD	18	4
CON	7	7	CON	5	3	DD	16	5	CON	14	5

(continued on the next page)

Table 38. (continued)

TWO-CELL - WHOLE WORDS											
Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
FATHER	24	1	MOTHER	24	1	FATHER	24	1	FATHER	24	1
MOTHER	24	1	MANY	23	2	HERE	24	1	HERE	24	1
MANY	23	2	SOME	23	2	MANY	24	1	MOTHER	24	1
NAME	22	3	TIME	23	2	MOTHER	24	1	TIME	24	1
SOME	21	4	FATHER	22	3	SOME	24	1	WORK	24	1
TIME	21	4	WORK	22	3	WORK	24	1	YOUNG	24	1
WORK	21	4	HERE	21	4	EVER	23	2	MANY	23	2
HERE	20	5	NAME	21	4	NAME	23	2	NAME	23	2
THEIR	20	5	YOUNG	21	4	THEIR	23	2	SOME	23	2
EVER	11	6	THEIR	20	5	TIME	23	2	EVER	22	3
YOUNG	10	7	EVER	17	6	YOUNG	22	3	LORD	22	3
SPIRIT	5	8	THOSE	14	7	LORD	20	4	THOSE	22	3
THOSE	5	8	QUESTION	11	8	THOSE	20	4	QUESTION	21	4
LORD	4	9	LORD	9	9	QUESTION	18	5	SPIRIT	20	5
QUESTION	4	9	WHOSE	8	10	WHOSE	17	6	THEIR	20	5
WHOSE	2	10	SPIRIT	7	11	SPIRIT	16	7	WHOSE	18	6
CHARACTER	0	11	CHARACTER	3	12	CHARACTER	11	8	CHARACTER	15	7
TWO-CELL - PART WORDS											
ONG	7	1	ONG	11	1	ATION	17	1	ATION	20	1
ALLY	5	2	ATION	10	2	ENCE	17	1	ONG	20	1
ATION	5	2	ENCE	10	2	ONG	16	2	ALLY	19	2
ENCE	4	3	ALLY	8	3	ANCE	15	3	ENCE	19	2
ANCE	2	4	ANCE	8	3	ALLY	14	4	MENT	18	3
MENT	2	4	NESS	5	4	MENT	12	5	ANCE	17	4
NESS	1	5	MENT	4	5	NESS	11	6	NESS	17	4
SION	0	6	SION	2	6	SION	10	7	SION	12	5

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Table 38. (continued)

SHORT-FORM WORDS											
Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
SAID	24	1	BEHIND	23	1	AGAINST	24	1	ABOVE	24	1
CHILDREN	22	2	CHILDREN	23	1	CHILDREN	24	1	ALMOST	24	1
HIM	21	3	HIM	23	1	FIRST	24	1	BEHIND	24	1
LETTER	21	3	LETTER	23	1	FRIEND	24	1	BELOW	24	1
MUST	20	4	SAID	23	1	HIM	24	1	CHILDREN	24	1
FRIEND	19	5	AGAINST	22	2	MUST	24	1	FIRST	24	1
AGAINST	18	6	ABOVE	21	3	SAID	24	1	FRIEND	24	1
BEHIND	18	6	FRIEND	21	3	ABOVE	23	2	GREAT	24	1
HIMSELF	18	6	GREAT	21	3	ALMOST	23	2	HERSELF	24	1
MUCH	17	7	O'CLOCK	21	3	BELOW	23	2	HIM	24	1
TODAY	17	7	SUCH	21	3	GREAT	23	2	HIMSELF	24	1
ALMOST	16	8	ALMOST	20	4	HIMSELF	23	2	SAID	24	1
FIRST	16	8	BELOW	20	4	LETTER	23	2	SUCH	24	1
GREAT	16	8	FIRST	20	4	MUCH	23	2	TODAY	24	1
ABOVE	15	9	HIMSELF	20	4	O'CLOCK	23	2	AFTERWARD	23	2
HERSELF	15	9	TODAY	20	4	SUCH	23	2	AGAINST	23	2
YOURSELF	14	10	HERSELF	19	5	TODAY	23	2	ALTHOUGH	23	2
O'CLOCK	13	11	TONIGHT	19	5	ALTHOUGH	22	3	LETTER	23	2
BELOW	12	12	MUCH	18	6	BEHIND	22	3	QUICK	23	2
SUCH	12	12	MUST	18	6	HERSELF	22	3	TONIGHT	23	2
QUICK	11	13	QUICK	18	6	THEMSELVES	22	3	YOURSELF	23	2
TONIGHT	10	14	THEMSELVES	18	6	YOURSELF	22	3	OURSELVES	22	3
THEMSELVES	7	15	YOURSELF	18	6	YOURSELVES	22	3	THEMSELVES	22	3

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Table 38. (concluded)

SHORT-FORM WORDS

Grade II			Grade III			Grade IV			Grade V		
Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank	Item	No. Right	Rank
YOURSELVES	6	16	YOURSELVES	18	6	AFTERWARD	21	4	THYSELF	22	3
OURSELVES	5	17	OURSELVES	17	7	QUICK	21	4	YOURSELF	22	3
AFTERWARD	4	18	AFTERWARD	9	8	TONIGHT	20	5	MUST	21	4
ONESELF	4	18	ALTHOUGH	8	9	OURSELVES	19	6	NECESSARY	21	4
NECESSARY	3	19	ALTOGETHER	8	9	DECEIVE	18	7	O'CLOCK	21	4
THYSELF	3	19	BENEATH	8	9	NECESSARY	18	7	BENEATH	20	5
BENEATH	2	20	ONESELF	7	10	BENEATH	17	8	MUCH	20	5
DECEIVE	2	20	THYSELF	6	11	BEYOND	17	8	BEYOND	19	6
ALTOGETHER	1	21	BEYOND	5	12	CONCEIVE	15	9	CONCEIVE	19	6
BEYOND	1	21	DECEIVE	5	12	THYSELF	15	9	DECEIVE	19	6
DECLARING	1	21	NECESSARY	3	13	ONESELF	10	10	ALTOGETHER	18	7
RECEIVING	1	21	CONCEIVE	2	14	PERCEIVING	10	10	ONESELF	16	8
ALTHOUGH	0	22	DECLARING	2	14	RECEIVING	10	10	RECEIVING	16	8
CONCEIVE	0	22	RECEIVING	2	14	ALTOGETHER	8	11	PERCEIVING	14	9
PERCEIVING	0	22	PERCEIVING	1	15	DECLARING	7	12	DECLARING	13	10
REJOICING	0	22	REJOICING	1	15	REJOICING	7	12	REJOICING	10	11

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The Diagnostic Perception Test was administered individually to 192 blind children in grades two, three, four and five in seven states and forty-eight cities. Students were equally distributed on the following variable: number of students at each grade, 48; number of boys or girls at each grade, 24; number of residential school or public school students, 24; and the number of students who took either Form A or Form B of the Diagnostic Perception Test at each Level and at each grade, 24.

The Diagnostic Perception Test consists of five levels of different modes of presentation: Level I, Matching with Aid; Level II, Matching without Aid; Level III, Recognition; Level IV, identification, and Level V, Reproduction. Two forms, Form A and Form B, were constructed for each level.

The data were analyzed concerning the Diagnostic Perception Tests for the following:

- Reliability
    - Suitability of items

Relationships between performance and:
- Grade placement
- Sex
- Type of school, i.e., residential or public
- Chronological age
- Intelligence
- Number of Years Using Braille
- Word Meaning and Paragraph Meaning

Sub-studies
- Complete Level I and complete Level II
- Written versus oral performance on Level V

Ranking levels

Conclusions

1. Effectiveness of the Instrument

a. Reliability

Reliability co-efficients were established for all levels and forms of the Diagnostic Perception Test, and were quite high and fairly comparable. Reliability coefficients ranged from .957 for Level II, Form B, to .979 for Level V, Form B.

b. Suitability of Items

Individual items on every level and form of the Diagnostic Perception Test were examined for their ability to discriminate between high- and low-scores in groups of grades two and three students and grades four and five students at the .01 level of significance using a Chi-square technique.

3. Relationship to Other Factors

Conclusions relative to the relationship between performance on the Diagnostic Perception Test and other factors were all positive.

a. Grade

Significant differences at the .005 level were found between the mean scores of each grade at every level of the test by use of analysis of variance techniques. In every instance, mean scores were higher for each grade than the grade preceding it.

b. Form

No significant differences in form were found at any level of the test by using analysis of variance techniques.

c. Sex

No significant difference in test performance by analysis of variance technique were discovered relative to sex except in the case of Level V where girls obtained

higher scores than boys at the .05 level of significance.

d. Type of School

Significant differences in performance at the .05 level were observed through analysis of variance at Levels II, IV and V, where residential school students obtained higher scores than public school students. Public school students tended to begin at a lower mean score in the second grade, but showed a more rapid rate of growth through the other three grades.

e. Chronological Age

Pearson Product-Moment Correlations Coefficients with each Level of the Diagnostic Perception Test were positive and ranged from .2882 for Level II to .4994 for Level V.

f. Intelligence

Pearson Product-Moment Correlations Coefficients ranged from .1949, Level I, to .3810 for Level IV. Intelligence did not correlate highly with performance on the test.

g. Number of Years Using Braille

Pearson Product Moment Correlation Coefficients ranged from .3586 on Level I to .5358 on Level IV. The relative difficulty of these tests, Level I is more difficult than Level IV, would justify the relationship of number of years using Braille to the difficulty of the Level.

h. Word Meaning and Paragraph Meaning

Spearman Rank Correlation Coefficients were established for performance on the total score of the Diagnostic Perception Test and the Word Meanings and Paragraph Meaning of the Stanford Achievement Test, Intermediate Level. Correlations were both positive: .57 with Word Meaning and .64 for Paragraph Meaning.

Sub-studies

a. Comparison of Level I and II

Complete Level I scores were compared by a t-test of significance with complete level II scores. The null hypothesis that there was not a difference in the means of the two tests was rejected.

b. Written versus Oral Performance on Level V

A comparison was made of performance on Level V through written and oral modes of responding. A t-test of significance was applied to the means of each mode of responding and the null hypothesis was accepted.

5. Ranking Levels

The relative difficulty of the five levels or modes of presentation was established by inspection of a table of the mean scores of each level at all four grades. The level of difficulty tended to vary with grade among Levels II, III, and IV, but Levels I and V continued to be the easier tests for each grade.

The format of the Level IV task, where alignment and contextual clues were minimal, might have had a negative effect upon performance.

In summary of the relationships between possible causal factors and performance on the Diagnostic Perception Test, grade-level and number of years using Braille, the latter being investigated in a limited sub-study, had a significant effect upon performance at all levels. The sex of the subject brought about a difference in scores only on Level V material, where girls performed better than boys. The type of school attended affected performance on Levels III, IV and V; residential students performed better than public school students on all three levels. A Difference in rate of growth was observed on Level V in favor of public school students at the higher grade levels. A difference in the intensity of teaching was felt to have been at work here.

6. Braille

Although many students obtained very high scores on all levels, only a few students received perfect scores even in grade five. This would indicate that Braille is a complex process which required specialized instruction, at least, through the intermediate grades.

The individual characters tended to arrive at the same point of relative difficulty under all modes of

presentation. The inherent factors within the characters themselves appear to affect their legibility; these factors have not been fully investigated.

Recommendations

On the basis of observations made during the trial of the material and the analysis of the data, the following recommendations are made:

1. The items selected through the process of item-analysis should be incorporated into reduced test forms and standardized on a representative sample of blind residential and public school students.
2. The format of the Level IV testing procedure should be revised to allow for physical contextual clues, i.e., alignment. Individual part-word symbols should be enclosed in typical words with the factor of one vocabulary kept to a minimum.
3. Levels V and III procedures should be combined into one test whereby the student's concept of a symbol and his ability to perceive that symbol could be measured at the same time.
4. Additional clues to word meaning should be given for those words which are misunderstood because

of their homonym, e.g., "know - no" and "I - eye." The other homonym pairs were separated in this manner during the study.

5. If a standardization procedure is undertaken, the testing should be done by a regular team of administrators who will travel throughout the country. In many instances it was very difficult to obtain experienced Braille teachers in different parts of the country who would give the tests.
6. The following are recommended areas for further study:
    a. An investigation of the relationship between chronological age, intelligence, and number of years using Braille should be made on a larger and more representative group of blind students than that included in the present sub-study.
    b. An investigation into the factors affecting Braille character legibility.
    c. An investigation into the relationship between types of Braille orthography and kinds of misperceptions.
    d. The construction of auditory discrimination tasks of letter-combinations peculiar to Braille.

e. The construction of short paragraphs at each grade-level which include appropriate Braille symbols for that grade level. These paragraphs may be used in testing the oral reading skills of Braille-readers in a situation with the least amount of artificiality.

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APPENDIXES

APPENDIX A

DIRECTIONS AND RECORD FORMS FOR PRELIMINARY TEST

A PILOT STUDY OF A TEST OF GRADE TWO BRAILLE PERCEPTION ABILITY

DESCRIPTION

The test, as it now stands, consists of 211 lines of Braille symbols. These lines are made up of only one correct symbol and seven alternatives which are similar in configuration but represent a specific kind of perception error. After the pilot study is completed, an item analysis will be made in order to select a shorter but representative form (or forms) of the original test. This shorter form (or forms) will be tried out on a larger population in the fall of 1963.

The test may be used in three ways or on three levels. These levels (listed in order of descending difficulty) are:

Level I — Reproduction and Recognition

The signs in the left margin are kept covered throughout this test. First the child is told a symbol and is asked to name (list) the dots which comprise this symbol, e.g. "e"---Dots 1 and 5. The response is recorded. Second, the child is asked to find the symbol--in some instances a whole word, in other cases a part of a word--on a horizontal line of eight alternatives. When he has made his choice, he marks his selection with a crayon or pencil.

Level II — Identification and Recognition

This level is used, if the child has seven consecutive errors in naming the dots that comprise the symbol. In this level he is shown the symbol and is asked to identify it, e.g. Dots 1 and 5---"e". After he has identified the symbol, he is asked to find this symbol again on the line of eight alternatives. Again, he marks his choice.

Level III — Matching without Identification

This level is used, if the child has seven consecutive errors in identifying the exposed letter. In this level he is again shown the dots but is not asked to identify it. He is simply shown the symbol and is asked to find it again on the line of eight alternatives. Again, he marks his choice.

Appropriate record forms are provided for this part of the test. Two additional forms are provided: (1) a personal history form for each student; and (2) an observation form for the recording of the student's performance in mechanical skill, while the test is being given.

TEST MATERIALS

The present test consists of 14 pages of material. Each line is introduced by a symbol and a line number. The symbol is to be covered, when Level I is being used. This symbol should be uncovered only if the student is dropped down to Levels II and III. Each new section is introduced by a symbol and the number sign preceding the "for" signs. The sections of the test are divided into the following groups:

Alphabetically Abbreviated Whole Words (e.g. "d" for "do")
Full Spelling (e.g. "e" is tested by the word "yes")
Upper Cell Whole Words (e.g. "ch" for "child")
Upper Cell Part Words (e.g. "gh" is tested by the word "high")
Lower Cell Whole Words (e.g. low "g" for "were")
Lower Cell Part Words (e.g. "in" is tested by the word "paint")
Two-cell Whole Words (e.g. dot 5 "h" for "here")
Two-cell Whole Words Used as Part Words (e.g. dots 4-5 "w" is tested by the word "wordy")
Two-cell Part Words (e.g. dots 4-6 "e" is tested by the word "dance")
Abbreviated Word Forms (e.g. "td" for "today")

DIRECTIONS FOR ADMINISTERING THE TEST

Level I

Place Page 1 of the test in front of the child. Use a curved ruler or piece of paper to cover the single symbols which are listed vertically down the left side of the page.

Say to the child:........

"THIS IS A TEST OF HOW WELL YOU KNOW YOUR BRAILLE. FIRST, I SHALL GIVE YOU A SIGN AND YOU WILL GIVE ME THE DOTS IN THIS SIGN. FOR INSTANCE, IF I SAY THE SIGN "EVERY", WHAT DOTS ARE IN THE SIGN FOR "EVERY"?

Record answer on the printed answer form under the first space of RESPONSES. If the answer is correct, say "That is right", and place a check in the space. If the answer is not correct, record the child's response and then tell him what the correct answer should be.

Now place the child's fingers on the first line of Braille. (Be sure the symbol in the left margin is covered.) Explain that the number sign and the two "for" signs mean example and that they are there to help him keep his place.

Say to the child.............

"NOW LET'S SEE IF YOU CAN FIND THE SIGN FOR "EVERY". BE SURE YOU READ ALL THE LINE BECAUSE SOME OF THE SIGNS LOOK VERY MUCH ALIKE. WHEN YOU FIND "EVERY", I WILL GIVE YOU A CRAYON AND YOU CAN MARK YOUR CHOICE".

After the child selects his choice, give him a crayon to mark his selection. Repeat the presentation with the following lines (1 to 23.) Point out the beginning line numbers to the student. After you record his response to the sign (in dots), say "ON LINE ____ FIND THE SIGN ________.

After line 23 another section of the test is begun. In this section after the student identifies the sign (in dots), he is asked to find it in a word. For example, he will be asked the dots for the sign "e", and then will have to find it in the word "yes". The letters not to be tested (in this case "y" and "s") will remain unchanged across the line; the sign being tested (in this case "e") will be changing throughout the line.

Say to the child.............

"THE SIGN 'E'". WHAT DOTS ARE IN THE SIGN 'E'?"

Record responses as before. Then say, "THE SIGN 'E' IS IN THE WORD "YES". CAN YOU FIND THE WORD 'YES' ON THIS LINE?"

Have the student mark his choice as before. Continue with the rest of this section.

Directions vary when the sign stands alone or as part of a word. On the printed answer form the change in directions is noted above each section.

Level II

If the student makes seven consecutive errors in naming the correct dots, remove the cover from the left margin of the paper. He will no longer be asked to name the dots in the sign. The testing will drop down to Level II. In this case, he will be shown the sign at the left and asked to identify it. Record his response under "Identification" opposite the symbol being tested. Do not correct the child, if he is wrong. After the child identifies the sign (correctly or incorrectly), remove his finger (fingers) from the sign and ask him to find the same sign on the line of choices. Again, have him mark the choice with crayon.

Level III

If the student makes seven consecutive incorrect identifications of the signs in the left margin, stop asking him to identify the sign. Simply let him feel the sign and then mark his choice of the same sign on the line. He may keep his finger on the original sign or go back to it in this level of the test, i.e. Level III. Place a note in the comments section that Level III is now being used.

SPECIAL NOTE: In some instances where long words are used it have been necessary to carry the eight selections (choices) over to two lines. These lines have been marked with an asterisk (*) on the printed form. Be sure to warn the students before he reads the line that the choices cover two lines.

STUDENT HISTORY FORM

PLEASE PRINT:

Name: ______________________________ Age: __/__ Sex: ____ Grade: __________
Last, First Initial yrs. mo. M or F

School ______________________ City & State ______________ Public or Residential ______

Intelligence (tested through individual intelligence tests):

Name of Test ______________ Date given __________ Score ______ I.Q. ______

Name of Test ______________ Date given __________ Score ______ I.Q. ______

Reading Achievement

Name of Test ______________ Form ___ Date given ______ Score __________

Name of Test ______________ Form ___ Date given ______ Score __________

Number of years using Braille ______________

Medical History:

Age of onset of blindness ______________ Congenitally blind __ Adventitiously __

Etiology of eye disease ______________________________

Secondary physical handicaps ______________________________

** Please list test results in order of the most recent to the oldest. Only two listings are requested here: the most recent and the next to the most recent.

Name of Student ______________________________

Level I

Line No.	Sign	Word, if in larger word	Correct Dots	Response of child	Level II	
					Identification	Comments
Sample	every		1-5			
1	can		1-4			
2	knowledge		1-3			
3	but		1-2			
4	[illegible] do		1-4-5			
5	more		1-3-4			
6	us		1-3-6			
7	go		1-2-4-5			
8	just		2-4-5			
9	have		1-2-5			
10	it		1-3-4-6			
11	like		1-2-3			
12	so		2-3-4			
13	not		1-3-4-5			
14	from		1-2-4			
15	very		1-2-3-6			
16	[illegible] as		1-3-5-6			
17	you		1-3-4-5-6			
18	will		2-4-5-6			
19	people		1-2-3-4			
20	that		2-3-4-5			
21	rather		1-2-3-5			
22	quite		1-2-3-4-5			

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
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			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	

Name of Student ____________

Page 2

Line No.	Sign	Word, if in larger word	Correct Dots	Response of child	Identification	Comments, if
Sample	e	yes	1-5			
23	a	came	1			
24	i	give	2-4			
25	c	back	1-4			
26	e	neck	1-5			
27	b	job	1-2			
28	d	wide	1-4-5			
29	m	come	1-3-4			
30	u	bump	1-3-6			
31	o	horse	1-3-5			
32	g	log	1-2-4-5			
33	j	jump	2-4-5			
34	h	hang	1-2-5			
35	x	next	1-3-4-6			
36	l	milk	1-2-3			
37	s	does	2-3-4			
38	n	win	1-3-4-5			
39	f	left	1-2-4			
40	v	move	1-2-3-6			
41	z	lazy	1-3-5-6			
42	y	boy	1-3-4-5-6			

Name of Student ______________

Page 2

Line No.	Sign	Word, if in larger word	Correct Dots	Response of child	Identification	Comments, if any
43	w	two	2-4-5-6			
44	p	sleep	1-2-3-4			
45	t	gate	2-3-4-5			
46	r	bird	1-2-3-5			
47	q	quiet	1-2-3-4-5			

(Give sing, Ask for correct dots. Record Answer. Ask to find sign on line.)

Sample	still		3-4			
48	child		1-6			
49	shall		1-4-6			
50	which		1-5-6			
51	this		1-4-5-6			
52	the		2-3-4-6			
53	and		1-2-3-4-6			
54	with		2-3-4-5-6			
55	of		1-2-3-5-6			
56	out		1-2-5-6			
57	for		1-2-3-4-5-6			

(Give sign. Ask for correct dots. Record answer. Ask to find sign in word ________.)

Sample	st	fast	3-4			
ch 58	ch	catch	1-6			
59	sh	fresh	1-4-6			
60	ea	bread	2			
61	ing	bring	3-4-6			
62	ow	[illegible] crown	2-4-6			

Name of Student ______

Page 4

Line No.	Sign	Word if in larger word	Correct Dots	Response of child	Identification	Comments, if any
63	wh	white	1-5-6			
64	ar	party	3-4-5			
65	gh	high	1-2-6			
66	th	nothing	1-4-5-6			
67	the	other	2-3-4-6			
68	ble	table	3-4-5-6			
69	and	demand	1-2-3-4-6			
70	ed	need	1-2-4-6			
71	with	withstand	2-3-4-5-6			
72	er	serve	[illegible] 1-2-4-5-6			
73	of	soft	1-2-3-5-6			
74	ou	through	[illegible]			
75	for	forget	1-2-3-4-5-6			

ive sign. Ask for correct dots. Record answer. Ask to find sign on line.)

Sample	in		3-5			
Sample 76	be		2-3			
77	enough		2-6			
78	his		2-3-6			
79	to -----	to [illegible]	2-3-5			
80	were		2-3-5-6			
81	was		3-5-6			
82	by -------	-by being	3-5-6			

Give sign. Ask for correct dots. Record answer. Ask to find in word ______.

Name of Student ______

Line No.	Sign	Word if used [illegible]	[illegible] Correct dots	Response of child	Identification	Comments, if any
Sample	com	common	3-6			
83	in	paint	3-5			
84	beg	began	2-3			
85	bb	rabbit	2-3			
86	con-	contain	2-5			
87	cc	occur	2-5			
88	& en	evening	2-6			
89	ff	differ	2-3-5			
90	gg	bigger [illegible]	2-3-5-6			
91	dis-	discover	2-5-6			
92	dd	ladder	2-5-6			

(Give sign. Ask for correct dots. Record answer. Ask to find sign on line.)

Sample	cannot		4-5-6, c			
93	character		5, ch			
94	many		4-5-6, m			
95	upon		4-5, u			
96	whose		4-5, wh			
97	here		5, h			
98	had		4-5-6, h			
99	those		4-5, (th)			
100	these		4-5, (the			
101	their		4-5-6, (th-)			
[illegible]	spirit		4-5-6, S			
[illegible]	question		5, q			

Name of Student ____________

[illegible] Give sign. Ask for correct dots. Record answer. Ask to find sign in word.) Page 6

Line No.	Sign	Word, if in larger word	Correct Dots	Response of child	Identification	Comments, if
Sample	ever	never	5, e			
104	know	unknown	5, k			
105	day	weekday	5, d			
106	mother	grandmother	5, m			
107	under	thunder	5, u			
108	one	money	5, O			
109	where	nowhere	5, wh			
110	through	throughout	5, (th)			
111	there	thereupon	5, (the)			
112	lord	landlord	5, l			
113	some	handsome	5, S			
114	name	namely	5, n			
115	father	godfather	5, f			
116	young	youngster	5, y			
117	word	wordy	4-5, w			
118	work	handwork	5, w			
119	world	worldly	4-5-6, w			
120	part	depart	5, p			
121	time	daytime	5, t			
122	ought	brought	5, (ou)			
123	right	brighten	5, r			

Name ______________

ive sign. Ask for correct dots. Record answer. Ask to find sign in word.)

Page 7

Line no.	Sign	Word, if in larger word	Correct Dots	Reponse of child	Identification	Comments, if any
Sample	ance	dance	4-6, e			
124	ence	fence	5-6, e			
125	ound	ground	4-6, d			
126	ong	song	5-6, g			
127	ful	awful	5-6, l			
128	sion	mansion	4-6, n			
129	tion	notion	~~[illegible]~~ 5-6, n			
130	ation	nation,	6, n			
131	less	unless	4-6, s			
132	ness	sadness	5-6, s			
133	ount	count	4-6, t			
134	ment	moment	5-6, t			
135	ity	city	5-6, y			
136	~~[illegible]~~ ally	really	6, y			

***NOTE CHANGE IN DIRECTIONS;
Give WORD. Ask for signs that make the word. Record answer. Ask child to find the word on the line.

Line no.	Word	------	Correct signs	Response	Identification	Comments, if a
Sample	said		s, d			
137	could		c, d			
138	children		(ch), n			
139	little		l, l			
140	against		ag(st)			
141	myself		[illegible] myf			

Name of student ____________________

page 9

Line No.	Word	----------	Correct signs	Response of child	Identification	Comments, if any
242	o'clock		((o'c)) o'c			
243	braille		brl			
244	great		grt			
245	because		(be)c			
246	must		m(st)			
247	about		ab			
248	friend		fr			
249	your		yr			
250	first		f(st)			
251	before		(be) f			
252	yourself		yrf			
253	across		acr			
254	letter		lr			
255	good		gd			
256	herself		h(er)f			
257	its		xs			
258	much		m(ch)			
259	after		af			
260	today		td			
261	afternoon		afn			

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	
			[illegible]		[illegible]	

Name of student ____________________

Page [illegible]

Item no.	Word		Correct signs	Response of child	Identification	Comments, if an
162	almost		alm			
163	again		ag			
164	himself		hmf			
165	itself		xf			
166	quick		qk			
167	would		wd			
168	behind		(be) h			
169	beside		(be) s			
170	themselves		(the)mvs			
171	perhaps		p(er)h			
172	above		abv			
173	always		alw			
174	him		hm			
175	together		tgr			
176	tonight		tn			
177	should		(sh)d			
178	below		(be)l			
179	between		(be)t			
180	altogether		alt			
181	paid		pd			

Name of student ____________________

Page 10

Line no.	Word	----------	Correct signs	Response of child	Identification	Comments, if any
182	such		s(ch)			
183	either		ei			
184	ourselves		(ou)rvs			
185	already		alr			
186	yourselves		yrvs			
187	tomorrow		tm			
188	beneath		(be)n			
189	also		al			
190	necessary		nec			
191	neither		nei			
192	afterward		afw			
193	declare		dcl			
194	declaring		dclg			
195	receive		rcv			
196	~~dec~~ deceive		dcv			
197	blind		bl			
198	oneself		[illegible] sef			
199	beyond		(be)y			
200	rejoicing		rjcg			
201	conceiving		(con)cvg			

Name of Student ______________

Page 11

Line No.	Word	----------	Correct signs	Response of child	Identification	Comments, if any
202	thyself		(th)yf			
203	deceiving		dcvg			
204	perceiving		p(er)cvg			
205	receiving		rcvg			
206	although		al(th)			
207	according		ac			
208	perceive		~~p(ercv)~~ p(er)cv			
209	rejoicing		rjc			
210	conceive ~~conceiving~~		(con)cv			
211	immediate		imm			

Number of testing sessions needed to completed testing: 1 __ 2 __ 3 __

Length of time needed for each testing sessions: Session 1. _____ hours _____ minutes

Session 2 686 hours _____ minutes

Session 3 _____ hours _____ minutes

The number of lines covered in each testing session.

Session 1 __________ lines

Session 2 __________ lines

Session 3 __________ lines

APPENDIX B

DIRECTIONS FOR THE ADMINISTRATION OF ALPHA- OR BETA-TYPE PROCEDURES OF THE DIAGNOSTIC PERCEPTION TEST

A PILOT STUDY OF A DIAGNOSTIC TEST OF GRADE TWO BRAILLE PERCEPTION ABILITY

General Purpose

The purpose of this diagnostic battery will be an attempt to isolate factors which affect recognition performance in Braille, and to ascertain whether errors can be grouped in clusters or patterns of diagnostic value. The present study is exploratory in nature. It is hoped that the results of this study will enable us to determine what kinds of items should be incorporated into a final form of the test which will meet these three purposes: (1) to furnish an objectively scored record of the frequency of Braille misperceptions; (2) to furnish a profiled analysis of errors according to kinds of Braille orthography and specific categories of misperceptions; and (3) to furnish a measure of performance on a five-point scale of recognition maturity.

Materials

The battery consists of five subtests and is available in two forms (A and B.) Testing materials include the following:

Brailled Materials

Identification Test (single sheet), Form A - used but not marked by child
" " " " Form B - " " " " " "
Diagnostic Perception Test (booklet), Form A - Marked by student
" " " " Form B - " " "

Inkprint Materials (marked by Test Administrator):

Record Form for Identification (Level IV) Test, Form A
" " " " " " Form B
Record Form for Alpha-type Administration
" " " Beta-type Administration
Short, dark crayons for marking Brailled tests - to be used by child

Procedure for Administration

Children in each sub-sample will be divided into two groups: Alpha and Beta. In order to reduce the factors of memory and practice, alternate forms of the tests will be given to half of the children under "Alpha" procedure and the other half will take the tests under "Beta" procedure. The order of the levels of procedure and the use of material is given below:

Alpha Administration		Beta Administration	
Level IV procedure,	Form B material	Level IV procedure,	Form A material
Level II procedure,	Form A material	Level II procedure,	Form B material
Level III procedure,	Form B material	Level III procedure,	Form A material
Level V procedure,	Form A material	Level V procedure,	Form B material
Level 1 procedure,	Form A material	Level 1 procedure,	Form B material

Each subtest will be given in its entirety before moving on to a new subtest (procedure.)

Children will be assigned beforehand to Alpha or Beta group. Test administrators must know to which group the child has been assigned before using any form of the test.

General Directions

1. Determine whether child is to be given Alpha-type or Beta-type administration. Lists of students assigned to each group will be determined beforehand by the project director.

2. Select appropriate record forms (inkprint) and Braille materials to be used in this type of administration (Alpha or Beta.) See Page 1 of this manual for the description and order of materials to be used.

3. Present the tests in the following order:

Level IV - Identification Test (Braille Single Sheet)

The child is asked to identify the individual symbols on the Brailled (single sheet) form of the test. Form A is used with Beta group; Form B is used with Alpha group. The teacher records the responses on the appropriate answer form (A or B); this form has a blue half-cover on it. Correct responses are circled by the teacher; incorrect responses are recorded on the blank spaces beside the correct answers. The child does not mark the Braille sheet; the Braille test form can be used again with other children.

Level II - Matching without Aid (Diagnostic Braille Perception Test Booklet)

The sign in the left margin is uncovered. The child is asked to match this symbol with a symbol on the line of eight alternatives. First, the child feels the symbol in the left margin. Then the child is asked to find the same symbol either standing alone or as part of a larger word on the line of eight alternatives. The child is not allowed to return to the key to check his selection. The student marks his choice.

Level III - Recognition (Diagnostic Braille Perception Test Booklet)

The symbol in the left margin is covered. The examiner says a symbol and the child is asked to find this symbol either standing alone or as part of a larger word on the line of eight alternatives. The child marks his choice.

Level V - Reproduction (Diagnostic Braille Perception Test Booklet)

The Brailled Test is not used at this level. The examiner tells the child a symbol and then asks the child to tell him how he would write this symbol (what dots or signs he would use.) If the answer is correct, the examiner places a check in the appropriate column of the answer space. If the answer is incorrect, the child's exact response is recorded.

Level 1 - Matching with Aid (Diagnostic Braille Perception Test Booklet)

The sign in the left margin is left uncovered. The child is asked to match this symbol with a symbol on the line of eight alternatives. First, the child feels the symbol in the left margin, then he is asked to find the same symbol either standing alone or as part of a larger word on the line of eight alternatives.

The child is allowed to return to the key sign to check his selection. The student then marks his choice. Used only as a check on Level II incorrect responses.

Directions for Administering Identification (Level IV) Test

Use single Braille sheet (Form A or B) and appropriate record form (blue half-cover.) Form A is used with Beta Administration group; Form B is used with Alpha group.

Do not mark the child's name on the Braille form; this test will be used again with other students. Record of the name of the child and the examiner, however, should be made on the inkprint form for either of the forms used.

Each line of the Braille test is preceded by a number. Begin with this number in the first line and tell the child that this is to help him to find the line. Tell him that you are going to show him some Braille signs and that he is to tell you what the signs mean. Some signs have many meanings. Begin with the first sign on Line 1. Let him feel the sign and then ask him what it means. Circle his answer on the record form opposite "line 1, position 1". If only one response is given, ask him what this sign means in a word or when it stands alone. If the child gives an answer other than those listed on the record form, write the incorrect responses in the blank space to the right of the correct responses.

CAUTION: BE SURE CHILD IS FEELING THE POSITION BEING TESTED. IF HE IS FEELING THE WRONG SIGN, THE ANSWER WILL NOT COINCIDE WITH THE ANSWER SHEET. LINE NUMBER AND POSITION NUMBER ARE GIVEN TO THE LEFT OF EACH ITEM ON THE ANSWER SHEET.

In some instances, signs are used as punctuation or as mathematical symbols. These alternatives are also listed in abbreviated forms in parentheses:

period	prd.	number sign	#
semi colon	s. col.	addition sign	add.
colon	col.	subtraction sign	sub.
question mark	q. mk.	fraction line	frac.
opening quotes	op. qt.	multiplication	mltp.
closing quotes	cl. qt.	ending division	end. div.
parentheses	()	beginning division	beg. div.
hyphen	hyp.	exclamation point	ex. pt.
capitals	cap.		

The mathematical and punctuation symbols are not to be elicited from the student. The student, however, should not be stopped from giving these signs.

Continue with the general directions of asking the child to name the single symbol he encounters until Line 3 is reached. In this line we are testing for lower-cell part-word contractions (e.g. "con".) Full-cell signs ("for") are placed after initial contractions and on either side of medial contractions to help in alignment. Ask the child to tell you what the sign means which is before the full-cell signs or between the full-cell signs. The Braille must be observed by the teacher. Beginning with Line 4, two or more cells are used to represent a single symbol. The examiner must be sure that the child reads the entire symbol before making a judgment.

As in all other tests in this battery, the testing is continued not matter how many errors are made and until all items have been tried.

GO TO LEVELS II, III, IV AND I PROCEDURES USING THE APPROPRIATE RECORD FORM AND TEST BOOKLET FOR ALPHA OR BETA ADMINISTRATION.

DIRECTIONS FOR ADMINISTERING THE TESTS

SPECIAL NOTICES

1. Directions vary for each section of the test. For the most part, changes in directions have been placed at the head of each new section. In some instances, a single symbol (whole word) is sought and, at other times, the child will be looking for a symbol in a larger word. When Level III is introduced, the child will have to be told the larger word which contains the symbol; this has been listed on the answer sheet.

2. In some instances, the eight alternatives occupy two lines of Braille. Asterisks (*) have been placed before each test item which occupies two lines. Be sure to warn students in Levels 1, II, and III. Not necessary in Level IV.

3. Some homonym difficulties might arise in Levels III and IV of the test, unless the child is given a sentence with a specific use of the word. These words are followed by a sign (#) and an appropriate footnote will be found at the bottom of the section.

4. Some lower-cell whole words must adjoin another word, if they are to have a specific meaning. Phrases have been included (see page 4 of the inkprint answer sheet) for the words "by" and "to". These are to be given to the student.

5. Notice should be made of the time taken by the child to complete each Level of procedure. Space is provided for the recording of times on the front page of the inkprint record form.

Materials needed for each student: Both Form A and Form B of Brailled test
Either Alpha or Beta Record form
Dark, short crayon

Students will be given either Alpha-type or Beta-type direction in the testing. While the directions for levels of procedure will be the same for either administration, a difference will be found in which of the Brailled test should be used for each level.

Fill in the blanks on the front of the appropriate inkprint (Alpha or Beta administration) form. As the Brailled forms are introduced, write the name of the student and the city in which the test is given on the front of each Braille test. This will avoid some confusion in similarities of name, school, etc.

All students begin with Level II procedure and continue throughout this level no matter how many errors are made. The Braille test to be used will depend upon whether Alpha or Beta administration is being employed. See inkprint record form for notation at the top of each section. One form (A or B) is used throughout each level.

Level II - Matching without Aid

Place the Brailled form of the test before the student and open the book (flat) to page 1. Form A is used for Alpha administration; Form B is used for Beta administration.

Say to the child ....

> "THIS IS A TEST OF HOW WELL YOU CAN MATCH SIGNS IN BRAILLE. I AM GOING TO LET YOU FEEL A WORD (this term changes to letter, sign, etc., as the test progresses.) AND THEN I SHALL ASK YOU TO FIND THIS WORD ON A LINE OF WORDS THAT LOOK VERY MUCH LIKE IT."

Now place the child's fingers on the first Brailled line on page 1. Allow him to feel the symbols in the left margin. Remove his fingers from the word after he has had ample opportunity to observe the symbol. Do not let him return to the key word after this. Explain that the two full-cell signs mean sample and that there will be numbers on other lines to help him keep his place.

Say to the child, while he is feeling the key word ....

> "CAN YOU FIND THIS WORD ON THE LINE?" Let the child make his selection and then give him a crayon to mark his choice. Be sure that the child marks through the word. Continue with this procedure through all lines of the test.

No meaning is to be attached to words or signs in this level of testing. Simply say "this word" without attaching a meaning. In some areas of the test the sign is included in a larger word. Ask the child to find this sign in a larger word or to find the word which contains the same sign he felt in the left margin. Directions are given on the inkprint record for each section.

The teacher will have to note the position (1 - 8) selected by the child. If this is correct (the number of the correct position is given on the inkprint record form), simply place a check beside the item under the Level II column. If his selection is incorrect, write the number of the position he selected (1 - 8). These incorrect responses will be checked by using Level 1 procedure after all other levels are completed.

Level III - ~~Identification~~ Recognition

Use another form of the Brailled test (now form B for Alpha administration and Form A for Beta administration) and place the Brailled booklet open to page 1 before the student. The signs in the left margin are now covered by a strip of paper or a curved ruler and remain covered throughout level III testing.

Say to the child ....

> "I SHALL SAY A WORD AND I WANT YOU TO FIND THE WORD (or sign in a larger word, later on) ON A LINE. THE WORD IS 'EVERY'. CAN YOU FIND THE WORD 'EVERY' ON THE FIRST LINE?"

Place child's fingers on first line of Braille. When choice is made, have child mark it through with the crayon. Remind him that the two full-cell signs mean sample and that other lines will be introduced by a number, so that he can keep his place. Continue with Level III procedure throughout the entire test on the new Brailled form, noting changes in directions (words, signs in larger words, homonyms) printed at the top of each column. Continue through test no matter how many errors are made. The examiner does not mark the inkprint form in this level of testing.

Level ~~IV~~ I - Reproduction

The child does not need a Brailled test form in this level of testing, since he does not have to mark anything. The examiner will give the child a word (sign or letter) and ask him to give back the dots or signs he would use in writing the word, sign, or letter. If the answer corresponds to the correct answer on the report form, a check is placed beside the item in the column marked "Answer of child" under Level IV. If incorrect, record the exact answer of the child in the same space. Continue throughout the entire test no matter how many errors occur.

Level 1 - Matching with Aid

This procedure is only adopted, when all other levels of the testing have been completed and is used only on incorrect responses made by the child when taking Level II tests.

Again place before the child the Brailled copy of the test used, when Level II was being administered (Form A for Alpha administration and Form B for Beta administration). The examiner will note which items were done incorrectly by inspection of the column under Level II on the answer sheet where incorrect responses were noted. The child is to be retested only on items marked incorrectly under Level II procedure.

The signs in the left margin remain uncovered. Place child's fingers on the first item where he made an incorrect response.

Say to the child ....

> "I AM GOING TO SHOW YOU A WORD (LETTER OR SIGN) AND WE WILL SEE IF YOU CAN FIND THAT WORD (LETTER OR SIGN) ON THE LINE. YOU MAY CHECK BACK TO SEE IF YOUR ANSWER IS RIGHT." Do not name word or the larger word in which the sign is used later on.

When the child makes a selection, make sure that he checks back to the sign in the margin. When he settles on a final choice, have him encircle his choice. This will avoid confusion with his previous markings of the test. (In Level II he was asked to mark through the word.) If the child finds this difficult, do it for him (although most children will find it easy to "trace" around their finger). If the child's selection is correct (the examiner may refer to the correct position listed on the answer sheet), simply place a check beside the line number of the item under the column marked "Level 1". If the choice is again incorrect, record the number of the position selected (1 - 8) on the inkprint answer form.

Continue with this procedure through all items marked incorrectly under Level II procedure.

Caution: Be sure that the child's name and the city where the test is given is written on the front page of both of the Brailled forms used and also on the appropriate inkprint form.

SPECIAL NOTE ON TEST ADMINISTRATION FOR LEVELS 1 AND II

The directions for the Column labeled "Levels II and 1"are incomplete on the inkprint record form. Please note these additions to the directions.

The child is never told what the word or sign means in these two levels. He is simply asked to observe the sign in the left margin and to match it to a sign either standing alone or as part of a larger word on the line of eight alternatives.

Particular attention must be given to the change in sign placement. The child should be warned when to look for a sign standing alone or as part of a word. While this grouping change will be obvious to some teachers by looking at the Braille form in front of the student, the test administrator should note the following order of direction changes:

Lines 1 - 11	Ask to find word
Lines 12 - 24	Ask to find sign in larger word
Lines 25 - 29	Ask to find word
Lines 30 - 38	Ask to find sign in larger word
Lines 39 - 42	Ask to find word
Lines 43 - 48	Ask to find sign in larger word
Lines 49 - 64	Ask to find sign alone or in larger word
Lines 65 - 72	Ask to find sign in larger word
Lines 72 - 109	Ask to find word

Sample items which introduce each new group follow the same procedure.

The teacher should keep this list before here, when administering Levels II and 1.

APPENDIX C

RECORD FORMS FOR ALPHA ADMINISTRATION

FORM B IDENTIFICATION (LEVEL IV) TEST RECORD FORM

Used with Alpha Administration Group

Name of Student______________________________Sex_____________Grade_____________

School______________________________________City_____________State_____________

Name of Test Administrator_______________________________Date Given______________

Time Needed for Completion of Identification Test:________Minutes

Symbols are listed opposite Line number and Position number as found on Braille test form. Circle correct responses. Record exactly incorrect responses. Leave blank, if no response is made.

B

L. No.	Pos. No.	Ask what sign means. Ask for second meaning, if any	L. No.	Pos. No.	Ask what sign means. Ask for second meaning, if any
1	1	E EVERY	2	14	BY THE
1	2	I	2	15	OU (OUT)
1	3	K KNOWLEDGE	L. No.	Pos. No.	Ask what sign means before or between full-cell signs
1	4	D DO	3	1	COM (HYP.)(SUB.)
1	5	U US	3	2	BE (BB)(S.COL.)
1	6	G GO	3	3	CON (CC)(COL.)
1	7	H HAVE	3	4	EN (ENOUGH)
1	8	L LIKE	3	5	GG (WERE) ()
1	9	N NOT	3	6	DD (DIS)(PRD.)
1	10	V VERY	3	7	IN
1	11	Y YOU	L. No.	Pos. No.	Ask what word means - two-cell
1	12	P PEOPLE	4	1	MOTHER
1	13	R RATHER	4	2	FATHER
1	14	S SO	4	3	SPIRIT
2	1	ST STILL (FRAC.)	4	4	NAME
2	2	IN	4	5	MANY
2	3	CH (CHILD)(MLTP.)	4	6	TIME
2	4	THE	4	7	EVER
2	5	BE (BB)(S.COL.)	4	8	SOME
2	6	OW (END.DIV.)	4	9	WORK
2	7	AR	5	1	WHOSE
2	8	WH (WHICH)	5	2	LORD
2	9	WAS (BY)(CL.QT.)	5	3	THOSE
2	10	BLE (#)	5	4	YOUNG
2	11	WITH	5	5	HERE
2	12	ER	5	6	QUESTION
2	13	WERE (GG) ()	5	7	THEIR
			5	8	CHARACTER

B
(cont.)

L. No.	Pos. No.	Ask what sign means - two cells
6	1	ANCE
6	2	ENCE
6	3	ONG
6	4	SION
6	5	NESS
6	6	MENT
6	7	ALLY
6	8	ATION

L. No.	Pos. No.	Ask what word means - two or more cells
7	1	SAID
7	2	CHILDREN
7	3	AGAINST
7	4	O'CLOCK
7	5	GREAT
7	6	MUST
7	7	FRIEND
8	1	FIRST
8	2	YOURSELF
8	3	LETTER
8	4	HERSELF
8	5	MUCH
8	6	TODAY
8	7	ALMOST

L. No.	Pos. No.	Ask what word means - two or more cells
9	1	HIMSELF
9	2	QUICK
9	3	BEHIND
9	4	THEMSELVES
9	5	ABOVE
9	6	HIM
10	1	TONIGHT
10	2	BELOW
10	3	ALTOGETHER
10	4	SUCH
10	5	OURSELVES
10	6	YOURSELVES
11	1	BENEATH
11	2	NECESSARY
11	3	AFTERWARD
11	4	DECLARING
11	5	DECEIVE
11	6	ONESELF
11	7	REJOICING
12	1	THYSELF
12	2	PERCEIVING
12	3	RECEIVING
12	4	ALTHOUGH
12	5	BEYOND
12	6	CONCEIVE

ALPHA

RECORD FORM

Name of Student______________________________ Sex____________ Grade_______

School__________________________________ City______________ State_______

Name of Test Administrator____

Time needed for the completion of each level:

Level II ______________minutes Date Given________________

Level III ______________minutes Date Given________________

Level V ______________minutes Date Given________________

Level I ______________minutes Date Given________________

Alpha group administration follows this order:

Level II - Form A of Brailled test
Level III - Form B of Brailled test
Level V - No Brailled test is used; items taken from Form A are orally given
Level I - Form A of Brailled test for mistakes made on Level II

Caution: Be sure the name, city and state of each child is written on the front page of both forms of the Brailled tests.

Alpha, page 1

Levels II & I, Form A				Level III, Form B		Level V I, Form A		
Place check beside correct response. If incorrect, record position selected (1 - 8.)				Give word. Ask to find the word______ on line____. (No record is made on this sheet.)		Give word. Ask: "How do you write the word______?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level I	Word		Word	Correct Response	Answer of Student
Sample	8			EVERY		EVERY	1-5	
1	6			KNOWLEDGE		CAN	1-4	
2	4			DO		BUT	1-2	
3	8			US		MORE	1-3-4	
4	3			JUST		GO	1-2-4-5	
5	5			IT		HAVE	1-2-5	
6	4			SO		LIKE	1-2-3	
7	1			FROM		NOT	1-3-4-5	
8	3			AS		VERY	1-2-3-6	
9	7			WILL		YOU #	1-3-4-5-6	
10	5			THAT		PEOPLE	1-2-3-4	
11	2			QUITE		RATHER	1-2-3-5	

Caution: Be sure child knows it is the word "you" and not the letter "U".

Alpha, page 2

Levels II & 1, Form A				Level III, Form B		I, Form A		
Place check beside correct response. If incorrect, record position selected (1 - 8.)				Give letter. Ask to find the letter ____ in the word ______.		Give letter. Ask: "How do you write the letter ____?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level I	Level 1	Letter	Use in the larger word	Letter	Correct Response	Answer of Stu
Sample	2				YES	E	1-5	
12	* 1			*	GIVE	A	1	
13	* 2			* K	SICK	C	1-4	
14	5			* D	RIDE	B	1-2	
15	* 5			* U	BUSY	M	1-3-4	
16	* 3			G	LEG	O	1-3-5	
17	* 3			* H	HANG	J	2-4-5	
18	* 4			* L	MILK	X	1-3-4-6	
19	* 2			N	RAN	S	2-3-4	
20	* 4			* V	MOVE	F	1-2-4	
21	* 1			Y	BOY	Z	1-3-5-6	
22	8			* P	SLEEP	W	2-4-5-6	
23	* 6			* R	BIRD	T	2-3-4-5	
24	* 4			* S	DOES	Q	1-2-3-4-5	

Levels II & 1, Form A				Level III, Form B		Level V, F[illegible] A		
Place check beside correct response. If incorrect, record position selected (1 - 8.)				Give word. Ask to find the word ______ on line ______.		Give word. Ask: "How do you write the word ______?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level 1	Word		Word	Correct Response	Answer of student
Sample	5			STILL		STILL	3-4	
25	8			CHILD		SHALL	1-4-6	
26	5			WHICH		THIS	1-4-5-6	
27	3			THE		AND	1-2-3-4-6	
28	7			WITH		OF	1-2-3-5-6	
29	4			OUT		FOR	1-2-3-4-5-6	

Levels II & 1, Form A				Level III, Form B		Le[illegible] V, Form A		
Place check beside correct response. If incorrect, record position selected (1 - 8.)				Give sign. Ask to find sign ______ in the word ______.		Give sign. Ask: "How do you write the sign ______?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level 1	Sign	If used in larger word	Sign	Correct Response	Answer of student
Sample	2			ST	FAST	ST	3-4	
30	* 6			* CH	CATCH	SH	1-4-6	
31	4			THE	OTHER	ING	3-4-5	
32	* 8			* OW	GROWN	TH	1-4-5-6	
33	2			AR	HARD	GH	1-2-6	
34	5			* WH	WHITE	THE	2-3-4-6	
35	* 2			BLE	TABLE	AND	1-2-3-4-6	
36	6			WITH	WITHSTAND	ED	1-2-4-6	
37	6			* ER	SERVE	OF	1-2-3-5-6	
38	* 3			OU	THOUGH	FOR	1-2-3-4-5-6	

Levels II & 1, Form A · Level III, Form B · Level V, Form A

Place a check beside correct response. If incorrect, record position selected (1 - 8.)				Give word. Ask to find the word ______ on line ____.		Give word. Ask: "How do you write the word _____?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level 1	Word	If used in larger word	Word	Correct Response	Answer of Child
Sample	7			IN		IN	3-5	
39	4			BE		ENOUGH	2-6	
40	7			WAS		HIS	2-3-6	
41	* 5			WERE		TO #	2-3-5	
42	8			* BY	find in: "By doing"	WAS	3-5-6	

Sentence: "I want to go" - to avoid homonym difficulty.

Levels II & 1, Form A · Level III, Form B · Level V Form A

Place a check beside correct response. If incorrect, record position selected (1 - 8.)				Give sign. Ask to find sign _____ in the word __________.		Give sign. Ask: "How do you write the sign _____?" If confused, ask: "What dots do you use?"		
Line No.	Correct position	Level II	Level 1	Sign	Used in the larger word	Sign	Correct Response	Answer of Child
Sample	* 5			* COM	COMMON	COM	3-6	
43	* 6			* BE	BEGAN	IN	3-5	
44	* 6			* CON	CONTAIN	BB	2-3	
45	* 1			* EN	EVENING	CC	2-5	
46	* 2			* GG	BIGGER	FF	2-3-5	
47	* 8			* DD	SADDER	DIS	2-5-6	
48	* 5			* IN	PAINT	EA	2	

Levels II & 1, Form A				Level III, Form B		Level V , Form A		
Place check beside correct response. If incorrect, record position selected (1 - 8.)				Give word. Ask to find word (by itself or in a larger word.)		Give word. Ask: "How do you write the word ______?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level 1	Word	Word, if in a larger word	Word	Correct Response	Answer of Child
Sample	* 7			* MOTHER	GRANDMOTHER	MOTHER	5 M	
49	* 1			* FATHER	GODFATHER	DAY	5 D	
50	4			SPIRIT		CANNOT	(4-5-6) C	
51	* 6			* NAME	NAMELY	ONE	5 O	
52	5			MANY		HAD	(4-5-6) H	
53	* 4			* TIME	DAYTIME	PART	5 P	
54	* 1			EVER	NEVER	OUGHT	5 (OU)	
55	* 7			* SOME	HANDSOME	RIGHT	5 R	
56	5			* WORK	HANDWORK	UPON	(4-5) U	
57	* 4			WHOSE		WHERE	5 (WH)	
58	* 2			* LORD	LANDLORD	WORLD	(4-5-6) W	
59	* 3			THOSE		THROUGH	5 (TH)	
60	7			* YOUNG	YOUNGSTER	WORD	(4-5) W	
61	* 3			HERE #		THERE ##	5 (THE)	
62	6			QUESTION		UNDER	5 U	
63	4			THEIR ###		THESE	(4-5) (THE)	
64	* 7			CHARACTER		KNOW	5 K	

# Sentence: "Here I am" - to avoid homonym difficulty.
## Sentence: "There is my house" - to avoid homonym difficulty.
### Sentence: "That is their house" - to avoid homonym difficulty.

Levels II & 1, Form A				Level III, Form B		Level V, Form A		
Place a check beside correct response. If incorrect, record position selected (1 - 8 .)				Give sign. Spell it out. Ask to find sign in word ______.		Give sign. Spell it out. Ask: "How do you write the sign____?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level 1	Sign	Used in the larger word	Sign	Correct Response	Answer of Child
Sample	2			ANCE	DANCE	ANCE	(4-6) E	
65	• 5			ENCE	FENCE	OUND	(4-6) D	
66	• 8			ONG	SONG	FUL	(5-6) L	
67	• 7			• SION	MANSION	TION	(5-6) N	
68	3			• NESS	SADNESS	ITY	(5-6) Y	
69	• 7			• MENT	MOMENT	LESS	(4-6) S	
70	6			• ALLY	REALLY	OUNT	(4-6) T	
71	1			ATION	NATION	ATION	6 N	

Levels II & 1, Form A				Level III, Form B		Level V ', Form A		
Place a check beside correct response. If incorrect, record position selected (1 - 9.)				Give word. Ask to find the word______on line_____		Give word. Ask: "How do you write the word______?" If confused, ask: "What signs do you use?"		
Line No.	Correct Position	Level II	Level 1	Word		Word	Correct Response	Answer of Child
Sample	5			SAID		SAID	SD	
72	7	/		CHILDREN		COULD	CD	
73	3	/		AGAINST		LITTLE	LL	
74	7			• O'CLOCK		MYSELF	MYF	
75	2			• GREAT		BRAILLE	BRL	
76	5			MUST		BECAUSE	(BE) C	
77	7			FRIEND		ABOUT	AB	
78	7			FIRST		YOUR	YR	
79	8			YOURSELF		BEFORE	(BE) F	
80	7			LETTER		ACROSS	ACR	
81	5			• HERSELF		GOOD	GD	
82	7			MUCH		ITS ǂ	XS	
83	6			TODAY		AFTER	AF	
84	3			• ALMOST		AFTERNOON	AFN	
85	3			HIMSELF		AGAIN	AG	
86	6			QUICK		ITSELF	XF	
87	8			BEHIND		WOULD	WD	
88	1			• THEMSELVES		BESIDES	(BE) S	
89	• 3			ABOVE		PERHAPS	P (ER) H	

ǂ Sentence: "The cat chased its tail" - to avoid homonym difficulty.

(Continued)

Levels II & 1, Form A | Level III, Form B | Alpha, Page 8
[illegible], Form A

Place a check beside correct response. If incorrect, record position selected (1 - 8.)				Give word. Ask to find the word ______ on line ______.		Give word. Ask: "How do you write the word ______?" If confused, ask: "What signs do you use?"		
Line No.	Correct Position	Level II	Level 1	Word		Word	Correct Response	Answer of Child
90	3			HIM		TODAY	TD	
91	• 4			TONIGHT		ALWAYS	ALW	
92	• 7			BELOW		TOGETHER	TGR	
93	6			• ALTOGETHER		SHOULD	(SH) D	
94	5			SUCH		BETWEEN	(BE) T	
95	3			• OURSELVES		PAID	PD	
96	5			• YOURSELVES		EITHER	EI	
97	7			BENEATH		ALREADY	ALR	
98	2			• NECESSARY		TOMORROW	TM	
99	7			AFTERWARD		ALSO	AL	
100	• 3			• DECLARING		NEITHER	NEI	
101	• 7			• DECEIVE		DECLARE	DCL	
102	• 1			• ONESELF		RECEIVE	RCV	
103	• 5			• REJOICING		BLIND	BL	
104	• 2			• THYSELF		PERCEIVE	P (ER) CV	
105	• 7			• PERCEIVING		CONCEIVING	(CON) CVG	
106	• 1			• RECEIVING		DECEIVING	DCVG	
107	7			• ALTHOUGH		ACCORDING	AC	
108	• 6			BEYOND		REJOICE	RJC	
109	• 8			• CONCEIVE		IMMEDIATE	IMM	

APPENDIX D

RECORD FORMS FOR BETA ADMINISTRATION

FORM A IDENTIFICATION (LEVEL IV) TEST RECORD FORM

Used with Beta Administration Group

Name of Student________________________Sex__________Grade________

School______________________________City__________State________

Name of Test Administrator________________________Date Given__________

Time Needed for Completion of Identification Test:________Minutes

Symbols are listed opposite Line number and Position number as found on Braille test form. Circle correct responses. Record exactly incorrect responses. Leave blank, if no response is made.

A

L. No.	Pos. No.	Ask what sign means. Ask for second meaning, if any.	L. No.	Pos. N.	Ask what sign means. Ask for second meaning, if any.
1	1	E every	2	14	OF
1	2	A	2	15	FOR
1	3	C can	L. No.	Pos. No.	Ask what the sign before or between full-cell sign means
1	4	B but	3	1	COM (HYP.)(SUB.)
1	5	M more	3	2	BB (S.COL.)
1	6	O (beg. div.)	3	3	CC (COL.)(CON)
1	7	J just	3	4	FF (TO)(EX.PT.)
1	8	X it	3	5	DIS (DD)(PRD.)
1	9	S so	3	6	EA (COMMA)
1	10	F from	3	7	IN
1	11	Z as	L. No.	Pos. No.	Ask what word means - two cells.
1	12	W will	4	1	MOTHER
1	13	T that	4	2	DAY
1	14	Q quite	4	3	CANNOT
2	1	ST STILL	4	4	ONE
2	2	IN	4	5	HAD
2	3	SH SHALL	4	6	PART
2	4	ING (add.)	4	7	OUGHT
2	5	EN ENOUGH	4	8	RIGHT
2	6	TH THIS	4	9	UPON
2	7	HIS (op. qt.)(q.mk.)	4	10	WHERE
2	8	GH	5	1	WORLD
2	9	THE	5	2	THROUGH
2	10	AND	5	3	WORD
2	11	TO (THE)	5	4	THERE
2	12	ED	5	5	UNDER
2	13	WAS (cl.qt.) BY	5	6	THESE
			5	7	KNOW

A
(cont.)

L. No.	Pos. No.	Ask what sign means - two cells.	L. No.	Pos. No.	Ask what word means - two or more cells
6	1	ANCE	9	1	ITSELF
6	2	OUND	9	2	WOULD
6	3	FUL	9	3	BESIDE
6	4	TION	9	4	PERHAPS
6	5	ITY	9	5	TODAY
6	6	LESS	9	6	ALWAYS
6	7	OUNT	10	1	TOGETHER
6	8	ATION	10	2	SHOULD
L. No.	Pos. No.	Ask what word means - two or more cells.	10	3	BETWEEN
7	1	SAID	10	4	PAID
7	2	COULD	10	5	EITHER
7	3	LITTLE	10	6	ALREADY
7	4	MYSELF	11	1	TOMORROW
7	5	BRAILLE	11	2	ALSO
7	6	BECAUSE	11	3	NEITHER
7	7	ABOUT	11	4	DECLARE
7	8	YOUR	11	5	RECEIVE
8	1	BEFORE	11	6	BLIND
8	2	ACROSS	12	1	PERCEIVE
8	3	GOOD	12	2	CONCEIVING
8	4	ITS	12	3	DECEIVING
8	5	AFTER	12	4	ACCORDING
8	6	AFTERNOON	12	5	REJOICE
8	7	AGAIN	12	6	IMMEDIATE

BETA

RECORD FORM

Name of Student____________________ Sex__________ Grade_______

School________________________ City__________ State_______

Name of Test Administrator______________________________

Time needed for the completion of each level:

Level II __________ minutes Date Given____________
Level III __________ minutes Date Given____________
Level V __________ minutes Date Given____________
Level I __________ minutes Date Given____________

Beta group administration follows this order:

Level II - Form B of Brailled test
Level III - Form A of Brailled test
Level V - No Brailled test is used: items taken from Form B are orally given
Level I - Form B of Brailled test for mistakes made on Level II

Caution: Be sure the name, city and state of each child is written on the front page of both forms of the Brailled tests used.

Beta, Page 1

Levela II & 1, Form B				Level III, Form A		Level V Form B		
Place check beside correct response. If incorrect, record position selected (1 - 8.)				Give word. Ask to find the word______on line____. (No record is made on this sheet.)		Give word. Ask: "How do you write the word_____?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level I	Word		Word	Correct Response	Answer of student
Sample	8			EVERY		EVERY	1-5	
1	2			CAN		KNOWLEDGE	1-3	
2	5			BUT		DO	1-4-5	
3	3			MORE		US	1-3-6	
4	6			GO		JUST	2-4-5	
5	2			HAVE		IT	1-3-4-6	
6	7			LIKE		SO	2-3-4	
7	6			NOT		FROM	1-2-4	
8	3			VERY		AS	1-3-5-6	
9	4			YOU #		WILL	2-4-5-6	
10	7			PEOPLE		THAT	2-3-4-5	
11	6			RATHER		QUITE	1-2-3-4-5	

Caution: Be sure child understands it is the word "YOU" and not the letter "U".

Level II & 1, Form B				Level III, Form A		Level V, Form B		
Place check beside correct response. If incorrect, record position selected (1 - 8.)				Give letter. Ask to find letter in the word______.		Give letter. Ask: "How do you write the letter____?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level L	Letter	Used in the larger word	Letter	Correct Response	Answer of student
Sample	2			E	YES	E	1-5	
12	• 2			• A	CAME	I	2-4	
13	• 5			• C	BACK	K	1-3	
14	• 7			B	JOB	D	1-4-5	
15	• 4			• M	SAME	U	1-3-6	
16	2			• O	HOME	G	1-2-4-5	
17	• 1			• J	JUMP	H	1-2-5	
18	• 6			• X	NEXT	L	1-2-3	
19	4			• S	DOES	N	1-3-4-5	
20	• 7			• F	LEFT	V	1-2-3-6	
21	6			• Z	LAZY	Y	1-3-4-5-6	
22	• 3			W	TWO	P	1-2-3-4	
23	• 5			• T	GATE	R	1-2-3-5	
24	• 2			• Q	QUIET	S	2-3-4	

Levels II & 1, Form B

Place check beside correct response. If incorrect, record position selected (1 - 8.)

Line No.	Correct Position	Level II	Level 1
Sample	5		
25	4		
26			
27	4		
28	3		
29	2		

Level III, Form A

Give word. Ask to find word______on line_____.

Word	
STILL	
SHALL	
THIS	
AND	
OF	
FOR	

Level V , Form B

Give word. Ask: "How do you write the word_____?" If confused, ask: "What dots do you use?"

Word	Correct Response	Answer of student
STILL	3-4	
CHILD	1-6	
WHICH	1-5-6	
THE	2-3-4-6	
WITH	2-3-4-5-6	
OUT	1-2-5-6	

Levels II & 1, Form B

Place check beside correct response. If incorrect, record position selected (1 - 8.)

Line No.	Correct Position	Level II	Level 1
Sample	2		
30	* 4		
31	5		
32	* 5		
33	8		
34	* 2		
35	8		
36	3		
37	* 1		
38	1		

Level III, Form B

Give sign. Ask to find the sign for_____in the word_____.

Sign	Used in the larger word
ST	FAST
* SH	FRESH
ING	BRING
* TH	NOTHING
GH	HIGH
THE	OTHER
* AND	DEMAND
ED	NEED
OF	SOFT
* FOR	FORGET

Level V, Form B

Give sign. Ask: "How do you write the sign____? If confused, ask: "What dots do you use?"

Sign	Correct Response	Answer of student
ST	3-4	
CH	1-6	
THE	2-3-4-6	
OW	2-4-6	
AR	3-4-5	
WH	1-5-6	
BLE	3-4-5-6	
WITH	2-3-4-5-6	
ER	1-2-4-5-6	
OU	1-2-5-6	

Levels II & 1, Form B				Level III, Form A		Level V 1, Form B		
Place a check beside correct response. If incorrect, record position selected (1 - 8.)				Give word. Ask to find the word______on line____.		Give word. Ask: "How do you write the word_____?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level 1	Word	Used in the larger word	Word	Correct Response	Answer of Student
Sample	7			IN		IN	3-5	
39	1			ENOUGH		BE	2-3	
40	8			HIS		WAS	3-5-6	
41	1			* TO	Find in: "to fear"	WERE	2-3-5-6	
42	* 2			WAS		BY #	3-5-6	

Place in phrase "by doing" - to avoid homonym difficulty.

Levels II & 1, Form B				Level III, Form B		Level V 1, Form B		
Place a check beside correct response. If incorrect, record position selected (1 - 8.)				Give sign. Ask to find sign_____in the word_____.		Give sign. Ask: "How do you write the sign_____?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level 11	Level 1	Sign	Used in the larger word	Sign	Correct Response	Answer of Student
Sample	* 5			* COM	COMMON	COM	3-6	
43	* 4			* IN	PAINT	BE	2-3	
44	* 5			* BB	RABBIT	CON	2-5	
45	* 6			* CC	OCCUR	EN	2-6	
46	* 6			* FF	DIFFER	GG	2-3-5-6	
47	* 1			* DIS	DISCOVER	DD	2-5-6	
48	* 6			* EA	BREAK	IN	3-5	

Levels II & 1, Form B				Level III, Form A		Level V, Form B		
Place check beside correct response. If incorrect, record position selected (1 - 8.)				Give word. Ask to find word_____by itself or in a larger word.		Give word. Ask: "How do you write the word_____?" If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level 1	Word	Word, if use in larger wor	Word	Correct Response	Answer of Student
Sample	* 7			* MOTHER	GRANDMOTHER	MOTHER	5 M	
49	* 3			* DAY	MONDAY	FATHER	5 F	
50	7			CANNOT		SPIRIT	(4-5-6) S	
51	* 1			* ONE	MONEY	NAME	5 N	
52	3			HAD		MANY	(4-5-6) M	
53	* 5			* PART	DEPART	TIME	5 T	
54	5			* OUGHT	BROUGHT	EVER	5 E	
55	* 7			* RIGHT	BRIGHTEN	SOME	5 S	
56	* 1			UPON		WORK	5 W	
57	5			* WHERE	NOWHERE	WHOSE	(4-5) (WH)	
58	* 5			* WORLD	WORLDLY	LORD	5 L	
59	2			* THROUGH	THROUGHOUT	THOSE	(4-5) (TH)	
60	* 7			WORD	WORDY	YOUNG	5 Y	
61	1			* THERE	THEREUPON	HERE #	5 H	
62	8			UNDER	THUNDER	QUESTION	5 Q	
63	5			THESE		THEIR ##	(4-5-6) (THE)	
64	7			* KNOW	UNKNOWN	CHARACTER	5 (CH)	

Sentence: "Here I am" - to avoid homonym difficulty.
Sentence: "That is their house" - to avoid homonym difficulty.

Beta, Page 6

Levels II & L, Form B				Level III, Form A		Level [illegible], Form B		
Place a check beside correct response. If incorrect, record position selected (1 - 8.)				Give sign. Spell it out. Ask to find sign in larger word______.		Give sign. Ask: "How do you write______?" Spell is out. If confused, ask: "What dots do you use?"		
Line No.	Correct Position	Level II	Level 1	Sign	Used in the larger word	Sign	Correct Response	Answer of student
Sample	2			ANCE	DANCE	ANCE	(4-6) E	
65	4			* OUND	GROUND	ENCE	(5-6) E	
66	7			* FUL	AWFUL	ONG	(5-6) G	
67	* 5			* TION	MOTION	SION	(4-6) N	
68	* 6			ITY	CITY	NESS	(5-6) S	
69	* 4			* LESS	UNLESS	MENT	(5-6) T	
70	* 3			OUNT	COUNT	ALLY	6 Y	
71	1			ATION	NATION	ATION	6 N	

Beta, Page 7

Levels II & 1, Form B				Level III, Form A		Level IV, Form B		
Place a check beside correct response. If incorrect, record position selected (1 - 8.)				Give word. Ask to find the word______on line____.		Give word. Ask: "How do you write the word_____?" If confused, ask: "What signs do you use?"		
Line No.	Correct Position	Level II	Level 1	Word		Word	Correct Response	Answer of Student
Sample	5			SAID		SAID	SD	
72	1			COULD		CHILDREN	(CH) N	
73	7			LITTLE		AGAINST	AG (ST)	
74	* 1			MYSELF		O'CLOCK	O 3C	
75	* 4			BRAILLE		GREAT	GRT	
76	1			BECAUSE		MUST	M (ST)	
77	4			ABOUT		FRIEND	FR	
78	4			YOUR		FIRST	F (ST)	
79	3			BEFORE		YOURSELF	YRF	
80	4			ACROSS		LETTER	LR	
81	* 8			GOOD		HERSELF	H(ER) F	
82	2			ITS #		MUCH	M (CH)	
83	3			AFTER		TODAY	TD	
84	* 5			AFTERNOON		ALMOST	ALM	
85	5			AGAIN		HIMSELF	HMF	
86	4			ITSELF		QUICK	QK	
87	8			WOULD		BEHIND	(BE) H	
88	* 2			BESIDE		THEMSELVES	(THE) MVS	
89	4			* PERHAPS		ABOVE	ABV	

Sentence: "The cat chased its tail" - to avoid homonym difficulty.

(Continued)

Beta, Page 8

Levels II & 1, Form B Place check beside correct response. If incorrect, record position selected (1 - 8.)				Level III, Form A Give word. Ask to find word______ on line____.		Level 1, Form B Give word. Ask: "How do you write the word______?" If confused, ask: "What signs do you use?"		
Line No.	Correct Position	Level II	Level 1	Word		Word	Correct Response	Answer of Student
90	3			TODAY		HIM	HM	
91	7			* ALWAYS		TONIGHT	.TN	
92	7			* TOGETHER		BELOW	(BE) L	
93	* 1			SHOULD		ALTOGETHER	ALT	
94	2			BETWEEN		SUCH	S (CH)	
95	* 5			PAID		OURSELVES	(OU) RVS	
96	* 4			EITHER		YOURSELVES	YRVS	
97	8			ALREADY		BENEATH	(BE) N	
98	* 2			TOMORROW		NECESSARY	NEC	
99	1			ALSO		AFTERWARD	AFW	
100	* 4			* NEITHER		DECLARING	DCLG	
101	* 2			* DECLARE		DECEIVE	DCV	
102	* 6			* RECEIVE		ONESELF	5 (O) (F)	
103	* 6			BLIND		REJOICING	RJCG	
104	* 2			* PERCEIVE		THYSELF	(TH) Y F	
105	* 5			* CONCEIVING		PERCEIVING	P (ER) CVG	
106	* 5			* DECEIVING		RECEIVING	RCVG	
107	* 2			ACCORDING		ALTHOUGH	AL (TH)	
108	8			* REJOICE		BEYOND	(BE) Y	
109	* 8			* IMMEDIATE		CONCEIVE	(CON) CV	

APPENDIX E

STUDENT HISTORY FORMS

Name of Student ____
Last   First   Middle

Age: Yrs.______Months______   Sex: Male__________Female__________

Name of School______________________ City & State______________________Grade____

Type of School: Residential________Public________ No. of Years using Braille__________

I.Q. score from most recent Interim Hayes-Binet:________Date Given__________

I.Q. score from most recent WISC test:______________Date Given__________

Results of most recent Stanford Achievement Test: Form Given______________

Word Meaning______________

Paragraph Meaning______________

Date Given______________

Vision: None________ Light Perception________ Form Perception________ Snellen Rating__________

Eye Disease.______________________________________RLF Yes_____No______

Age of onset of blindness__________ Congenitally Blind?__________ Adventitiously Blinded?__________

Secondary physical handicaps____

____

Right-handed__________ Left-handed__________

Type of Administration under which this student took the testing battery:

Check one: Alpha_____ Beta_____

APPENDIX F

INKPRINT VERSION OF LEVEL IV TEST, FORMS A AND B

LEVEL IV TEST, IDENTIFICATION - FORM A

(Inkprint Version)

Line Number	
#1	E A C B M O J X S F Z W T
#2	ST IN SH ING EN TH HIS GH THE AND TO(THE) ED WAS OF FOR
#3	**COM(Full cell) (Full cell)BB(Full cell) (Full cell)CC(Full cell) (Full cell)FF(Full cell) DIS(Full cell) (Full cell)EA(Full cell) (Full cell)IN(Full cell)
#4	5M 5D 4-5-6C 5O 4-5-6H 5P 5(OU) 5R 4-5U 5(WH)
#5	4-5-6W 5(TH) 5W 5(THE) 5U 4-5(THE) 5K
#6	4-6E 4-6D 5-6L 5-6Y 4-6S 4-6T 6N
#7	SD CD LL MYF BRL (BE)C AB YR
#8	(BE)F ACR GD XS AF AFN AG
#9	XF WD (BE)S P(ER)H TD ALW
#10	TGR SHD (BE)T PD EI ALR
#11	TM AL NEI DEC RCV BL
#12	P(ER)CV (CON)CVG DCVG AC RJC IMM

**Printed on one line in Braille.

LEVEL IV TEST, IDENTIFICATION - FORM B

(Inkprint Version)

Line Number	
#1	E I K D U G H L N V Y P R S
#2	ST IN CH THE BE OW AR WH WAS BLE WITH ER WERE BY(THE) OU
#3	**COM(Full cell) BE(Full cell) CON(Full cell) (Full cell)EN(Full cell) (Full cell)GG(Full cell) DIS(Full cell) (Full cell)IN(Full cell)
#4	5M 5F 4-5-6S 5N 4-5-6M 5T 5E 5S 5W
#5	4-5(WH) 5L 4-5(TH) 5Y 5H 5Q 4-5-6(THE) 5(CH)
#6	4-6E 5-6E 5-6G 5-6S 4-6N 5-6T 6Y 6N
#7	SD (CH)N AG O'C GRT M(ST) FR
#8	F(ST) YRF LR H(ER)F M(CH) TD ALM
#9	HMF QK (BE)H (THE)MVS ABV HM
#10	TN (BE)L ALT S(CH) (OU)RVS YRVS
#11	(BE)N NEC AFW DCLG DCV 5OF RJCG
#12	(TH)YF P(ER)CVG RCVG AL(TH) (BE)Y (CON)CV

**Printed on one line in Braille.

APPENDIX G

INKPRINT VERSION OF FORM A TEST USED IN LEVEL I, II OR III

Inkprint versions of Form A and Form B are printed as they are given in the Braille version with two exceptions:

1. The lines of inkprint do not follow the lines of Braille from page to page.
2. In order to facilitate the identification of the type of error for the reader, the type of error has been designated in the upper part of each box:

(MD)	Missed Dots
(AD)	Added Dots
(HA)	Horizontal Alignment
(HR)	Horizontal Reversal
(VA)	Vertical Alignment
(VR)	Vertical Reversal
(DR)	Diagonal Reversal

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-5 EVERY	Sample	(MD) WHICH	(VR) IN	(VA) CHILD	(HA) BUT	(AD) A	(HR) I	(VA) ENOUGH	EVERY
1-4 CAN	1	(VA) I	(VA) (3-6)	(MD) MORE	(MD) SHALL	(VA) EVERY	CAN	(AD) A	(MD) DO
1-2 BUT	2	(MD) (GH)	(HA) EVERY	(VA) KNOWLEDGE	BUT	(MD) HAVE	(AD) A	(VA) BE	(HA) I
1-3-4 MORE	3	(AD) KNOWLEDGE	(HR) SHALL	(MD) PEOPLE	(AD) STILL	(DR) (-ING)	(VA) FROM	(VR) US	MORE
1-2-4-5 GO	4	(MD) QUITE	(VA) NOT	GO	(AD) DO	(VR) WERE	(MD) (ER)	(AD) FROM	(AD) HAVE
1-2-5 HAVE	5	(MD) OUT	(HR) JUST	(VA) (GH)	(AD) BUT	HAVE	(MD) RATHER	(DR) (2-5-6)	(VR) (2-3-5)

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Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-2-3 LIKE	6	(HA) SO	(AD) BUT	(MD) PEOPLE	LIKE	(MD) VERY	(MD) RATHER	(HA) 0	(AD) KNOWLEDGE
1-3-4-5 NOT	7	NOT	(VA) THAT	(HA) THIS	(HR) (ED)	(AD) DO	(VR) AS	(DR) THE	(MD) QUITE
1-2-3-6 VERY	8	(HR) (-BLE)	(HA) THE	VERY	(MD) AND	(AD) LIKE	(VR) PEOPLE	(VA) RATHER	(DR) THIS
1-3-4-5-6 YOU	9	(AD) AS	(AD) IT	(AD) NOT	(AD) THIS	(MD) FOR	(HA) AND	YOU	(VA) WITH
1-2-3-4 PEOPLE	10	(VA) RATHER	(HR) THIS	(MD) QUITE	(HA) NOT	PEOPLE	(AD) LIKE	(DR) (BLE)	(VR) VERY
1-2-3-5 RATHER	11	(VA) PEOPLE	RATHER	(VA) VERY	(MD) OF	(AD) HAVE	(HA) OUT	(HR) WILL	(AD) LIKE

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-5 E	Sample	(VA) Y(CH)S	YES	(VR) Y(IN)S	(HR) YIS	(AD) YAS	(MD) YOS	(VA) Y(EN)S	(HA) YBS
1 A	12	CAME	(MD) CKME	(HA) C(4)ME	(MD) CEME	(DR) C(6)ME	(VA) C(EA)ME	(MD) CCME	(VA) C(3)ME
1-4 C	13	(MD) BA(SH)K	BACK	(MD) BAMK	(MD) BAXK	(VA) BAIK	(VA) BAEK	(VA) BA(CC)K	(AD) BA(4)K
1-2 B	14	(HA) JOI	(MD) JO(CH)	(HA) JOE	(MD) JOH	JOB	(VA) JO(BB)	(VA) JOK	(AD) JO(2)
1-3-4 M	15	(AD) SA(ST)E	(VA) SAFE	(VR) SAVE	(DR) SA(ING)E	SAME	(HR) SA(SH)E	(MD) SAXE	(AD) SAKE

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-3-5 O	16	(VA) HUME	(HA) H(WH)ME	HOME	(MD) HRME	(AD) HEME	(AD) HKME	(MD) HZME	(HR) H(OW)ME
2-4-5 J	17	(MD) GUMP	(DR) (TO)UMP	JUMP	(VR) (DIS)UMP	(VA) (AR)UMP	(HR) HUMP	(AD) IUMP	(MD) WUMP
1-3-4-6 X	18	(AD) NEMT	(MD) NEYT	(VA) NEZT	NEXT	(AD) NE(SH)T	(VA) NE(ED)T	(AD) NEUT	(VA) NENT
2-3-4 S	19	(MD) DOET	DOES	(HA) DOE(OW)	(HR) DOE(WH)	(VA) DOEM	(AD) DOEI	(VR) DOE(GH)	(HA) DOE(AR)
1-2-4 F	20	(HR) LEDT	(VA) LEHT	(MD) LE(ED)T	LEFT	(DR) LE(3-5-6)T	(AD) LECT	(MD) LEPT	(VR) LE(2-3-6)T
1-3-5-6 Z	21	LAZY	(HA) LA(BLE)Y	(HR) LA(THE)Y	(MD) LA(AND)Y	(AD) LA(WH)Y	(VA) LA(OU)Y	(DR) LA(ED)Y	(VR) LANY

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Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
2-4-5-6 W	22	(HA) T(OU)O	(MD) T(OW)O	(HR) TRO	(VA) T(BLE)O	(MD) T(ER)O	(AD) TJO	(VA) T(TH)O	TWO
2-3-4-5 T	23	(HR) GA(OU)E	(VA) GANE	(VA) GA(THE)E	(HA) GAWE	(AD) GAJE	GATE	(MD) GAQE	(AD) GASE
1-2-3-4-5 Q	24	(AD) RUIET	(DR) (WITH)UIET	(MD) (FOR)UIET	QUIET	(HR) (ER)UIET	(VA) (AND)UIET	(AD) GUIET	(VR) (OF)UIET
3-4 STILL	Sample	(MD) SO	(VA) I	(MD) MORE	(AD) (4)	STILL	(VA) (IN)	(HA) KNOWLEDGE	(HR) CHILD
1-4-6 SHALL	25	(MD) THIS	(MD) IT	(AD) CAN	(HR) MORE	(VR) (ING)	(VA) DO	(DR) US	SHALL

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Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-4-5-6 THIS	26	(HA) NOT	(VR) (BLE)	(VA) WILL	(HR) PEOPLE	THIS	(AD) WHICH	(DR) VERY	(MD) YOU
1-2-3-4-6 AND	27	(AD) PEOPLE	(HR) YOU	AND	(AD) (ED)	(VA) QUITE	(MD) FOR	(VA) OF	(AD) VERY
1-2-3-5-6 OF	28	(DR) (ER)	(AD) RATHER	(MD) FOR	(AD) OUT	(VA) AND	(VR) QUITE	OF	(HR) WITH
1-2-3-4-5-6 FOR	29	(AD) QUITE	(AD) AND	(AD) WITH	FOR	(AD) YOU	(AD) OF	(AD) (ER)	(AD) GO
3-4 ST	Sample	(MD) FA(ING)	FA(ST)	(VA) FAI	(HA) FA(K)	(HR) FA(CH)	(VA) FA(IN)	(AD) FA(3)	(MD) FAS

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-4-6 SH	30	(VR) FRE(ING)	(AD) FRE(CH)	(MD) FRE(TH)	(HR) FREM	(MD) FREX	FRE(SH)	(VA) FRE(WH)	(DR) FREU
3-4-6 ING	31	(AD) BR(ST)	(MD) BRX	(VA) BR(3-5-6)	BR(ING)	(MD) BR(BLE)	(VR) BR(SH)	(HR) BRU	(DR) BRM
1-4-5-6 TH	32	(HA) NON(ING)	(VA) NOW(ING)	(AD) NOD(ING)	(VR) NO(BLE)(ING)	(HR) NOP(ING)	(MD) NOY(ING)	(DR) NOV(ING)	NO(TH)(ING)
1-2-6 GH	33	(HR) HI(AR)	HI(GH)	(HA) HIL	(AD) HI(CH)	(HA) HI(WH)	(VR) HI(S)	(VA) HIU	(MD) HI(OU)
2-3-4-6 THE	34	(HA) OVR	(DR) ONR	(VA) OXR	(AD) OSR	O(THE)R	(HR) OZR	(VR) O(ED)R	(MD) O(WITH)R
1-2-3-4-6 AND	35	(AD) DEMP	DEM(AND)	(AD) DEMV	(HR) DEMY	(VA) DEMQ	(MD) DEM(FOR)	(AD) DEM(ED)	(VA) DEM(OF)

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-2-4-6 ED	36	(AD) NE(GH)	(MD) NE(ER)	(HR) NEN	(VR) NE(THE)	(DR) NEZ	NE(ED)	(HA) NEP	(VA) NE(OU)
1-2-3-5-6 OF	37	(VR) SQT	(AD) SZT	(MD) S(FOR)T	(AD) SRT	(HR) S(WITH)T	S(OF)T	(DR) S(ER)T	(VA) S(AND)T
1-2-3-4-5-6 FOR	38	(AD) (OF)GET	(AD) (ER)GET	(FOR)GET	(AD) (WITH)GET	(AD) QGET	(AD) (AND)GET	(AD) YGET	(AD) (G)GET

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
3-5 IN	Sample	(VA) I	(AD) 3	(HR) ENOUGH	(MD) WAS	(VR) EVERY	(HA) BE	IN	(VA) STILL
2-6 ENOUGH	39	(VA) CHILD	(HA) BE	(VR) I	ENOUGH	(MD) HIS	(HR) IN	(AD) 2	(VA) EVERY

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
2-3-6 HIS	40	(VR) FROM	(AD) BE	(MD) THE	(HR) WAS	(MD) VERY	(VA) (FF)	HIS	(DR) DO
2-3-5 TO	41	(DR) JFE(AR)	(VR) HFE(AR)	(VA) SFE(AR)	(AD) (CON)FE(AR)	(TO)FE(AR)	(HR) (DIS)FE(AR)	(VA) (O)FE(AR)	(MD) (T)FE(AR)
3-5-6 WAS	42	(VR) DO	(AD) IN	(MD) AS	(DR) FROM	(HR) HIS	(MD) WERE	(VA) JUST	WAS
3-6 COM	Sample	(VA) (C)MON	(MD) (ING)MON	(VA) (IN)MON	(MD) UMON	(COM)MON	(AD) (6)MON	(VA) (IN)MON	(VA) (EN)MON
3-5 IN	43	(VR) PAET	(VA) PA(ST)T	(VA) PAIT	(HA) PA(BB)T	(MD) PAOT	PA(IN)T	(HR) PA(EN)T	(AD) PA(5)T

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Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
2-3 BB	44	(HA) RA(IN)IT	(HR) RA(5-6)IT	(VA) RA:IT	(MD) RA(FF)IT	(DR) RA(4-5)IT	RA(BB)IT	(AD) RA(3)IT	(VA) RABIT
2-5 CC	45	O(CC)UR	(MD) O(FF)UR	(VA) O(3-6)UR	(AD) O(EA)UR	(VA) OIUR	(VA) O(EN)UR	(MD) OJUR	(MD) O(DD)UR
2-3-5 FF	46	(VA) DIF(ER)	DI(FF)(ER)	(HR) DI(DD)(ER)	(DR) DIJ(ER)	(VR) DIH(ER)	(AD) DI(BB)(ER)	(VA) DIS(ER)	(MD) DI(GG)(ER)
2-5-6 DIS	47	(DR) HCOV(ER)	(AD) (CON)COV(ER)	(MD) WCOV(ER)	(VA) (OW)COV(ER)	(VA) (WH)COV(ER)	(VR) JCOV(ER)	(HR) (TO)COV(ER)	(DIS)COV(ER)
2 EA	48	(VA) BRAK	(VA) BR3K	(HA) BR5K	(MD) BRBK	BR(EA)K	(MD) BR(BB)K	(MD) BR(EN)K	(MD) BRIK

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
5M MOTHER	Sample	(AD) GR(AND)5(ST)	(MD) GR(AND)5N	(VA) GR(AND)5O	(HA) GR(AND)(EA)M	(HR) GR(AND)5(SH)	(DR) GR(AND)5(ING)	GR(AND)5M	(VR) GR(AND)5U
5D DAY	49	6MON5D	(HR) 6MON5F	(VR) 6MON5(3-5-6)	(VA) 6MON5J	(AD) 6MON5E	(MD) 6MON5(TH)	(HA) 6MON(EA)D	(DR) 6MON5(2-3-6)
(4-5-6)C CANNOT	50	(AD) (5-6)C	(HR) LC	(AD) (4-5)C	(4-5-6)C	(MD) #C	(MD) WC	(HA) (AR)C	(HA) (WH)C
5O ONE	51	(VA) M5HY	(DR) MAOY	(VA) M6OY	(AD) M5EY	(HR) M5(OW)Y	M5OY	(HA) M5(AR)Y	(MD) M5ZY
(4-5-6)H HAD	52	(MD) (W)H	(HA) (WH)H	(AD) (5-6)H	(MD) #H	(4-5-6)H	(HR) LH	(AD) (4-6)H	(HA) (OW)H

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
5P PART	53	(VR) DE5V	(AD) DE5F	(MD) DE5Q	DE5P	(DR) DE5(BLE)	(HA) DE5N	(HR) DE5(TH)	(VA) DE5R
5(OU) OUGHT	54	BR5OU	(DR) BRA(OU)	(VA) BR5Z	(HR) BR5T	(AD) BR5(GH)	(MD) BR5(OF)	(VA) BR6(OU)	(HA) BR5R
5R RIGHT	55	(HR) B5W(EN)	(AD) B5H(EN)	(VA) B5V(EN)	(HA) B5T(EN)	(DR) B(A)(R)(EN)	(MD) B5Q(EN)	B5R(EN)	(VA) B4R(EN)
(4-5)U UPON	56	(HR) BU	(AD) 5U	(DR) (BE)U	(HA) EU	(4-5)U	(VA) (5-6)U	(VA) (4-6)U	(MD) (4-5-6)U
5(WH) WHERE	57	(HR) NO5S	(HA) NO5O	(VA) NO5(2-5-6)	NO5(WH)	(AD) NO5(CH)	(HR) NO5S	(VR) NO5(AR)	(HA) NO5(GH)
(4-5-6)W WORLD	58	(VA) (4-5-6)(TH)LY	(4-5-6)WLY	(HA) (O)(W)LY	(MD) (TH)WLY	(AD) (4-5)WLY	(DR) #WLY	(AD) (4-5-6)(DD)LY	(HR) (4-5-6)RLY

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
5(TH) THROUGH	59	(MD) 5(ER)(OU)T	(HA) 5(ED)(OU)T	5(TH)(OU)T	(VA) 5W(OU)T	(HR) 5P(OU)T	(VR) 5(BLE)(OU)T	(DR) 5V(OU)T	(AD) 5(WH)(OU)T
(4-5)W WORD	60	(VA) (4-5)(BLE)Y	(VA) (5-6)WY	(HA) (4-5)TY	(AD) (4-5)(OW)Y	(HR) (4-5)RY	(MD) (4-5)(WITH)Y	(4-5)WY	(DR) (BE)WY
5(THE) THERE	61	(MD) 5(AND)(4-5)U	(AD) 5B(4-5)U	5(THE)(4-5)U	(VA) 5X(4-5)U	(VR) 5(ED)(4-5)U	(HA) 5(BLE)(4-5)U	(DR) 5N(4-5)U	(HR) 5Z(4-5)U
5U UNDER	62	(VA) (TH)5O	(AD) (TH)5(CH)	(HR) (TH)5(ING)	(VR) (TH)5M	(AD) (TH)5K	(TH)5U	(HA) (TH)(EA)U	(MD) (TH)5X
(4-5)(THE) THESE	63	(HR) B(THE)	(VA) (4-6)(THE)	(VA) (5-6)(THE)	(4-5)(THE)	(DR) (BE)(THE)	(MD) J(THE)	(HA) I(THE)	(AD) 5(THE)
5K KNOW	64	(VR) UN4KN	(AD) UN5AN	(HA) UN5(CH)N	(MD) UN5UN	(HR) UN(EA)KN	(VA) UN5BN	UN5KN	(HA) UN5(ST)N

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
(4-6)E ANCE	Sample	(HR) D(4-6)I	D(4-6)E	(AD) D4E	(MD) D(4-6)(WH)	(HA) DKE	(DR) D(4-6)(EN)	(VA) D(4-5)E	(VR) D(4-6)(IN)
(4-6)D OUND	65	(HA) GR(CH)D	(DR) GR(4-6)(2-3-6)	(VA) GR(4-6)J	(AD) GR(4-6)E	GR(4-6)D	(VR) GR(4-6)(3-5-6)	(MD) GR(4-6)(TH)	(HR) GR(4-6)F
(5-6)L FUL	66	(DR) AWBL	(AD) AW(5-6)K	(HR) AW(BB)L	(VA) AW(4-6)L	(MD) AW(5-6)P	(VA) AW(4-5)L	(HA) AW(5-6)(GH)	AW(5-6)L
(5-6)N TION	67	(VA) MO(4-5)N	(AD) MO5N	(HA) MO(EN)N	(MD) MO(4-5-6)N	(HR) MO(BB)N	(VA) MO(4-6)N	MO(2-5)N	(DR) MOBN
(5-6)Y ITY	68	(MD) C(WH)Y	(HA) C(IN)Y	C(5-6)Y	(VA) C(4-6)Y	(HR) C(BB)Y	(VA) C(4-5)Y	(DR) CBY	(AD) C5Y

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
(4-6)S LESS	69	(AD) UN(4-6)I	(MD) UN(4-5-6)S	(VA) UN(4-5)S	(HA) UN(ST)S	(HR) UNKS	(HA) UN(4-6)(AR)	UN(4-6)S	(VR) UN(4-6)(GH)
(4-6)T OUNT	70	(VA) C(5-6)T	(HR) CKT	(MD) C(4-6)(WITH)	(AD) C4T	(HR) C(4-6)(OU)	C(4-6)T	(HA) C(CH)T	(MD) C(ING)T
6N ATION	71	N6N	(HR) N3N	(VA) N4N	(VA) N5N	(AD) N6D	(MD) N(CH)N	(HA) N6(TH)	(DR) NAN
SD	Sample	(HR) SF	(AD) ID	(DR) (AR)D	(MD) TD	SD	(VR) (GH)D	(VA) (TO)D	(HA) (OW)D
CD	72	(AD) AD	(VR) (COM)D	(DR) C(2-3-6)	(MD) C(TH)	(VA) (E)(D)	(HR) CF	CD	(MD) CN

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
LL	73	(MD) LR	(AD) BL	LL	(AD) (BE)L	(HR) (4-5-6)L	(HA) SL	(HA) OL	(HA) L(GH)
MYF	74	(VA) M(WITH)F	(VR) MY(2-3-6)	(HA) (SH)YF	(AD) MYC	(HR) M(AND)F	(MD) MY(ED)	MYF	(DR) (ING)YF
BRL	75	(VA) BVL	BRL	(HA) BTL	(MD) LRL	(VR) (BE)RL	(DR) (5-6)RL	(AD) BRK	(HR) BWL
(BE)C	76	(VA) (BE)E	(MD) (BE)F	(AD) (BE)A	(HA) (IN)C	(BE)C	(VR) BC	(HR) (5-6)C	(DR) (4-5)C
AB	77	(HR) 4B	(AD) B	(VA) AK	(HA) AE	(DR) 6B	(MD) AL	AB	(VR) A(BB)
YR	78	(HR) (AND)R	(AD) YH	(VA) (WITH)R	(AD) NR	(AD) XR	(HA) YT	YR	(MD) YRF

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
(BE)F	79	(HA) (EN)F	(VR) BF	(AD) (BE)C	(DR) (4-5)F	(HR) (BE)D	(MD) (BE)P	(VA) (BE)H	(BE)F
ACR	80	(VR) A(COM)R	(HA) ACT	(DR) 6CR	(AD) AC	(HR) ACW	(VA) AIR	ACR	(MD) AMR
GD	81	(VR) (GG)D	(AD) GC	(DR) G(2-3-6)	(AD) FD	GD	(MD) G(TH)	(HR) GF	(VA) ND
XS	82	(MD) YS	(DR) X(AR)	(VR) X(GH)	(HA) XL	(VA) ZS	(AD) MS	XS	(HR) X(WH)
AF	83	(HA) F	(DR) 6F	(VA) AM	(HR) AD	(VR) 3F	AF	(AD) AC	(MD) AG
AFN	84	(MD) AFY	(VA) AMN	(AD) AF	(HA) AF(TH)	(VR) AFZ	(HR) AF(ED)	(DR) AF(THE)	AFN

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
AG	85	(MD) KG	(MD) AG(ST)	AG	(VA) A(ED)	(AD) AF	(AD) AD	(VR) A(GG)	(MD) (CH)G
XF	86	(AD) MF	(VR) X(2-3-6)	(HR) XD	(VA) NF	(DR) X(3-5-6)	XF	(MD) YF	(MD) XP
WD	87	(HA) TD	(HA) (OU)D	(HR) RD	(VA) (TH)D	(MD) WP	(AD) JD	(AD) (OW)D	WD
(BE)S	88	(BE)S	(HR) (BE)(WH)	(VA) (BE)M	(AD) (BE)I	(MD) (BE)T	(VR) BS	(HA) (BE)L	(DR) (BE)(AR)
P(ER)H	89	(VA) P(ER)O	(HA) N(ER)H	P(ER)H	(DR) P(OF)H	(MD) (AND)(ER)H	(HR) PQH	(AD) PGH	(VR) V(ER)H
TD	90	(MD) TN	(HR) RD	TD	(DR) T(2-3-6)	(HA) (OU)D	(VR) T(3-5-6)	(VA) T(SH)	(AD) SD

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
ALW	91	(VA) AL(TH)	(DR) 6LW	(MD) ARW	ALW	(HA) ALT	(HR) ALR	(MD) KLW	(AD) ALJ
TGR	92	(MD) (WITH)GR	(VA) (THE)GR	(VR) T(GG)B	(HA) TGT	(HR) (OU)GR	(HR) TGW	TGR	(AD) TGL
(SH)D	93	(MD) (SH)(TH)	(HR) MD	(HA) (SH)F	(AD) CD	(VR) (ING)D	(SH)D	(VA) (SH)(SH)	(DR) UD
(BE)T	94	(VR) BT	(HA) (EN)T	(DR) (4-5)T	(VA) (BE)N	(BE)T	(MD) LT	(HR) (BE)(OU)	(AD) (BE)S
PD	95	(HR) (TH)D	(VR) VD	PD	(VA) RD	(DR) #D	(HA) ND	(AD) SD	(MD) QD
EI	96	(MD) OI	(VA) EC	(AD) AI	(HA) BI	EI	(DR) E(IN)	(VR) (IN)I	(HR) EE

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
ALR	97	(AD) AL	(HA) AOR	(HR) ALW	(AD) ABR	(MD) BLR	(HA) ALT	ALR	(VA) ALP
TM	98	(MD) TN	TM	(VA) (T)(O)	(HA) RM	(VR) TU	(DR) T(ING)	(HR) T(SH)	(AD) SM
AL	99	(MD) KL	(MD) BL	(AD) AK	(HA) AS	(HA) A(GH)	(DR) 6L	AL	(AD) AB
NEI	100	(DR) (THE)EI	(HA) NEB	NEI	(HR) NII	(VA) NEC	(MD) YEI	(AD) OEI	(VR) N(IN)I
DCL	101	(MD) DML	(HR) FCL	(HA) DCO	(MD) DCV	(AD) DAL	(VA) DEL	DCL	(VR) D(COM)L
RCV	102	RCV	(HA) RCZ	(VA) PCV	(DR) RC(TH)	(VR) RCP	(HR) WRC	(AD) RCVG	(MD) RMV

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
BL	103	(HA) BS	(AD) AL	(VR) (BE)L	(HA) BO	BL	(MD) LL	(MD) BR	(AD) BK
P(ER)CV	104	(VA) P(ER)IV	P(ER)CV	(DR) P(ER)C(TH)	(VR) P(WITH)CV	(HR) PQCV	(AD) P(OU)CV	(MD) P(ER)CVG	(HA) N(ER)CV
(CON)CVG	105	(AD) (CON)CVD	(HA) (CON)CZG	(MD) (CON)MVG	(VR) (CON)CPG	(VA) (CON)CVN	(HR) (CON)C(BLE)G	(CON)CVG	(DR) (CON)C(TH)G
DCVG	106	DCVG	(MD) DCVQ	(AD) DCLG	(HA) DC(THE)G	(AD) DCVD	(VR) DCV(GG)	(VA) DIVG	(HR) FCVG
AC	107	(MD) ACR	(AD) AA	(DR) 6C	(MD) A(SH)	(VA) AE	(MD) KC	AC	(MD) AM
RJC	108	(MD) RJCG	(DR) R(FF)C	(AD) RIC	(VA) R(OW)C	(HA) (OU)JC	RJC	(HR) RHC	(VR) R(DD)C

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
IMM	109	(AD) IMC	(VR) IMU	(HR) I(SH)M	(HA) BMM	(MD) IMMLY	(DR) I(ING)M	(VA) IOM	IMM

APPENDIX H

INKPRINT VERSION OF FORM B TEST USED IN LEVEL I, II OR III

Inkprint versions of Form A and Form B are printed as they are given in the Braille version with two exceptions:

1. The lines of inkprint do not follow the lines of Braille from page to page.
2. In order to facilitate the identification of the type of error for the reader, the type of error has been designated in the upper part of each box:

    (MD) Missed Dots
    (AD) Added Dots
    (HA) Horizontal Alignment
    (HR) Horizontal Reversal
    (VA) Vertical Alignment
    (VR) Vertical Reversal
    (DR) Diagonal Reversal

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-5 EVERY	Sample	(MD) WHICH	(VR) IN	(VA) CHILD	(HA) BUT	(AD) A	(HR) I	(VA) ENOUGH	EVERY
1-3 KNOWLEDGE	1	(HA) STILL	KNOWLEDGE	(MD) LIKE	(HA) CHILD	(VA) BUT	(AD) A	(MD) O	(MD) US
1-4-5 DO	2	(HR) FROM	(VA) JUST	(DR) HIS	(MD) NOT	DO	(VR) WAS	(AD) CAN	(MD) THIS
1-3-6 US	3	(AD) CHILD	(VA) HIS	US	(DR) SHALL	(MD) AS	(HR) (ING)	(VR) MORE	(AD) KNOWLEDGE
2-4-5 JUST	4	(MD) THAT	(MD) WILL	(VR) (2-5-6)	(DR) (2-3-5)	(VA) DO	JUST	(AD) I	(HR) HAVE
1-3-4-6 IT	5	(AD) US	IT	(VA) (ED)	(MD) YOU	(VA) NOT	(AD) MORE	(VA) AS	(AD) SHALL

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
2-3-4 SO	6	(VR) (GH)	(VA) MORE	(HA) (AR)	(AD) STILL	(MD) PEOPLE	(HR) WHICH	SO	(HA) LIKE
1-2-4 FROM	7	(DR) WAS	(AD) BUT	(MD) GO	(AD) CAN	(VR) HIS	FROM	(VA) HAVE	(HR) DO
1-3-5-6 AS	8	(HA) VERY	(VR) NOT	AS	(MD) OF	(DR) (ED)	(AD) WHICH	(VA) OUT	(HR) THE
2-4-5-6 WILL	9	(HR) RATHER	(MD) (ER)	(HA) THAT	WILL	(VA) THIS	(HA) OUT	(MD) WITH	(AD) JUST
2-3-4-5 THAT	10	(AD) JUST	(MD) WITH	(HA) RATHER	(HR) OUT	(VA) THE	(AD) SO	THAT	(VA) NOT
1-2-3-4-5 QUITE	11	(DR) WITH	(HR) (ER)	(VR) OF	(MD) FOR	(VA) AND	QUITE	(AD) THAT	(AD) RATHER

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-5 E	Sample	(VA) Y(CH)S	YES	(VR) Y(IN)S	(HR) YIS	(AD) YAS	(MD) YOS	(VA) Y(EN)S	(HA) YBS
2-4 I	12	(MD) G(OW)VE	GIVE	(AD) G(EA)VE	(VA) G(ST)VE	(VA) G(IN)VE	(VR) G(EN)VE	(HR) GEVE	(HA) G(4-5)VE
1-3 K	13	(AD) SICA	(VA) SICB	(HA) SIC(ST)	(MD) SICU	SICK	(HA) SIC(CH)	(MD) SICO	(VA) SIC(BB)
1-4-5 D	14	(VA) RI(DD)E	(HR) RIFE	(MD) RINE	(VA) RI(SH)E	(DR) RI(2-3-6)E	(AD) RICE	RIDE	(VR) RI(3-5-6)E
1-3-6 U	15	(VA) B(GH)SY	(VR) BMSY	(HR) B(ING)SY	BUSY	(AD) B(CH)SY	(AD) BKSY	(MD) BZSY	(DR) B(SH)SY

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-2-4-5 G	16	(VA) LE(ED)	LEG	(AD) LEF	(VA) LEN	(MD) LE(ER)	(MD) LEQ	(VR) LE(GG)	(AD) LEH
1-2-5 H	17	HANG	(DR) (2-5-6)ANG	(VA) (GH)ANG	(HR) JANG	(MD) RANG	(MD) (OU)ANG	(AD) (E)ANG	(VR) (2-3-5)ANG
1-2-3 L	18	(AD) MIBK	(MD) MIRK	(HA) MIOK	(HR) MI(4-5-6)K	(HA) MISK	MILK	(MD) MIVK	(AD) MI(BB)K
1-3-4-5 N	19	(VA) RAX	(MD) RAY	(HR) RA(ED)	RAN	(AD) RAD	(DR) RA(THE)	(VR) RAZ	(HA) RA(TH)
1-2-3-6 V	20	(HR) MO(BLE)E	(VA) MORE	(VR) MOPE	(DR) MO(TH)E	(MD) MO(AND)E	(AD) MOLE	MOVE	(HA) MO(THE)E
1-3-4-5-6 Y	21	(MD) BO(FOR)	(AD) BOX	(VA) BO(ER)	(AD) BON	(HA) BO(AND)	BOY	(AD) BO(TH)	(AD) BOZ

Sign	Line / no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-2-3-4 P	22	(AD) SLEEL	(HR) SLEE(TH)	SLEEP	(HA) SLEE(ED)	(MD) SLEE(AND)	(DR) SLEE(BLE)	(VR) SLEEV	(VA) SLEER
1-2-3-5 R	23	(MD) BI(OF)D	(AD) BIHD	(AD) BI(FF)D	(HR) BIWD	BIRD	(VA) BIPD	(HA) BI(OU)D	(AD) BIOD
2-3-4 S	24	(MD) DOET	DOES	(HA) DOE(OW)	(HR) DOE(WH)	(VA) DOEM	(AD) DOEI	(VR) DOE(CH)	(HA) DOE(AR)
3-4 STILL	Sample	(MD) SO	(VA) I	(MD) MORE	(AD) (4)	STILL	(VA) (IN)	(HA) KNOWLEDGE	(HR) CHILD
1-6 CHILD	25	(MD) US	(HA) KNOWLEDGE	(HR) STILL	CHILD	(MD) SHALL	(AD) A	(VA) ENOUGH	(VA) EVERY

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-5-6 WHICH	26	(MD) AS	(HA) (OH)	(VA) SHALL	WHICH	(VR) (AR)	(AD) EVERY	(HA) O	(HR) SO
2-3-4-6 THE	27	(DR) NOT	(MD) WITH	(AD) HIS	THE	(VR) (ED)	(HR) AS	(VA) WERE	(HA) VERY
2-3-4-5-6 WITH	28	(DR) QUITE	(AD) THE	WITH	(AD) THAT	(HR) OF	(MD) FOR	(VR) (ER)	(VA) YOU
1-2-5-6 OUT	29	(MD) OF	OUT	(VA) AS	(HA) RATHER	(HR) THAT	(HA) WILL	(AD) WHICH	(AD) HAVE
3-4 ST	Sample	(MD) FA(ING)	FA(ST)	(VA) FAI	(HA) FA(K)	(HR) FA(CH)	(VA) FA(IN)	(AD) FA(3)	(MD) FAS

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
1-6 CH	30	(MD) CAT(GH)	(MD) CATU	(VA) CAT(EN)	CAT(CH)	(HA) CATK	(AD) CATA	(VA) CATE	(HR) CAT(ST)
2-3-4-6 THE	31	(HA) OVR	(DR) ONR	(VA) OXR	(AD) OSR	O(THE)R	(HR) OZR	(VR) O(ED)R	(MD) O(WITH)R
2-4-6 OW	32	(MD) GR(ED)N	(HA) GR(GH)N	(AD) GR(EN)N	(MD) GRWN	GR(OW)N	(AD) GRIN	(VA) GR(SH)N	(HR) GRON
3-4-5 AR	33	(VA) H(ING)D	(VR) H(WH)D	(HA) HOD	(AD) H(IN)D	(HA) HSD	(MD) HND	(HR) H(GH)D	H(AR)D
1-5-6 WH	34	(HA) OITE	(WH)ITE	(AD) EITE	(VR) (AR)ITE	(HR) SITE	(HA) (GH)ITE	(MD) ZITE	(VA) (SH)ITE
3-4-5-6 BLE	35	(HA) TAZ	(DR) TAP	(MD) TAY	(VA) TAW	(HR) TAV	(AD) TA(ING)	(VR) TA(TH)	TA(BLE)

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
2-3-4-5-6 WITH	36	(HR) (OF)(ST)(AND)	(VR) (ER)(ST)(AND)	(WITH)(ST)(AND)	(AD) W(ST)(AND)	(MD) FOR(ST)(AND)	(AD) T(ST)(AND)	(VA) Y(ST)(AND)	(DR) Q(ST)(AND)
1-2-4-5-6 ER	37	S(ER)VE	(AD) SGVE	(VA) SYVE	(VR) S(WITH)VE	(AD) S(OU)VE	(MD) S(FOR)VE	(HR) SQVE	(DR) S(OF)VE
1-2-5-6 OU	38	(TH)(OU)(GH)	(HA) (TH)R(GH)	(AD) (TH)H(GH)	(VA) (TH)Z(GH)	(HA) (TH)W(GH)	(HR) (TH)T(GH)	(MD) (TH)(ER)(GH)	(VA) (TH)(ED)(GH)
3-5 IN	Sample	(VA) I	(AD) 3	(HR) ENOUGH	(MD) WAS	(VR) EVERY	(HA) BE	IN	(VA) STILL
2-3 BE	39	BE	(MD) SO	(AD) 2	(MD) HIS	(VA) KNOWLEDGE	(HA) ENOUGH	(VA) BUT	(HA) IN

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
3-5-6 WAS	40	(VR) DO	(AD) IN	(MD) AS	(DR) FROM	(HR) HIS	(MD) WERE	(VA) JUST	WAS
2-3-5-6 WERE	41	WERE	(VA) THE	(AD) WAS	(MD) OF	(VA) AS	(VR) GO	(AD) HIS	(MD) WITH
3-5-6 BY	42	(DR) FDO(ING)	(BY)DO(ING)	(HR) (2-3-6)DO(ING)	(VA) (DIS)DO(ING)	(MD) ZDO(ING)	(AD) (COM)DO(ING)	(VR) (D)DO(ING)	(MD) (BLE)DO(ING)
3-6 COM	Sample	(VA) (C)MON	(MD) (ING)MON	(VA) (IN)MON	(MD) UMON	(COM)MON	(AD) (6)MON	(VA) (IN)MON	(VA) (EN)MON
2-3 BE	43	(VA) BCAN	(HR) (5-6)CAN	(DR) (4-5)CAN	(BE)CAN	(AD) (2)CAN	(MD) SCAN	(HA) (EN)CAN	(VA) KCAN

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
2-5 CON	44	(AD) (5)TA(IN)	(MD) (TO)TA(IN)	(MD) (DIS)TA(IN)	(VR) CTA(IN)	(CON)TA(IN)	(MD) HTA(IN)	(VA) (EN)TA(IN)	(VA) ITA(IN)
2-6 EN	45	(HA) EV(BB)(ING)	(MD) EV(OW)(ING)	(VR) EVI(ING)	(VA) EVE(ING)	(HR) EV(IN)(ING)	EV(EN)(ING)	(AD) EV(EA)(ING)	(VA) EV(CC)(ING)
2-3-5-6 GG	46	(MD) BI(WITH)(ER)	(AD) BI(FF)(ER)	(VA) BIZ(ER)	(MD) BI(OF)(ER)	(VA) BI(THE)(ER)	BI(GG)(ER)	(VA) BIX(ER)	(VR) BIG(ER)
2-5-6 DD	47	SA(DD)(ER)	(DR) SAH(ER)	(VA) SA(OW)(ER)	(HR) SA(FF)(ER)	(AD) SA(EN)(ER)	(VA) SA(WH)(ER)	(MD) SA(GG)(ER)	(VR) SAJ(ER)
3-5 IN	48	(VR) PAET	(VA) PA(ST)T	(VA) PAIT	(HA) PA(BB)T	(MD) PAOT	PA(IN)T	(HR) PA(EN)T	(AD) PA(5)T

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
5-M MOTHER	Sample	(AD) GR(AND)5(ST)	(MD) GR(AND)5N	(VA) GR(AND)5O	(HA) GR(AND)(EA)M	(HR) GR(AND)5(SH)	(DR) GR(AND)5(ING)	GR(AND)5M	(VR) GR(AND)5U
5-F FATHER	49	(MD) GOD5(ED)	(AD) GOD5I	GOD5F	(VA) GOD5M	(HR) GOD5D	(DR) GOD5(3-5-6)	(HA) GOD(EA)F	(VR) GOD5(2-3-6)
(4-5-6)S SPIRIT	50	(AD) (4-6)S	(HA) (AR)S	(HA) (WH)S	(MD) WS	(HR) LS	(MD) (TH)S	(4-5-6)S	(AD) (4-5)S
5-N NAME	51	5NLY	(MD) 5QLY	(VR) 5ZLY	(HA) 5PLY	(AD) 5OLY	(VA) 5TLY	(DR) 5(THE)LY	(HR) 5(ED)LY
(4-5-6)M MANY	52	(AD) (5-6)M	(HR) LM	(4-5-6)M	(AD) (4-6)M	(HA) (WH)M	(MD) (TH)M	(MD) WM	(HA) (OW)M

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
5-T TIME	53	(VA) DAY5N	(MD) DAY5(WITH)	(AD) DAY5(AR)	(HA) DAY5R	DAY5T	(VR) DAY4T	(HR) DAY5(OU)	(DR) DAYAT
5-E EVER	54	(MD) N(IN)E	(AD) N(5)(5)	(VA) N(5)(EN)	(HR) N(5)I	N5E	(VR) N5(IN)	(HA) N(EA)E	(VA) N4E
5-S SOME	55	(AD) H(AND)5(ST)	(VR) H(AND)5(GH)	(HA) H(AND)5(AR)	(MD) H(AND)5(THE)	(VA) H(AND)5(2-3-5)	(HR) H(AND)5(WH)	H(AND)5S	(HA) H(AND)5(OW)
5-W WORK	56	H(AND)5W	(DR) H(AND)AW	(VA) H(AND)5(TH)	(AD) H(AND)W	(HR) H(AND)5R	(HA) H(AND)5(OU)	(VR) H(AND)4W	(MD) H(AND)5(ER)
(4-5)(WH) WHOSE	57	(MD) D(WH)	(AD) 4(WH)	(VA) (4-6)(WH)	(DR) (BE)(WH)	(4-5)(WH)	(VR) (5-6)(WH)	(HA) I(WH)	(HR) B(WH)
5-L LORD	58	(HR) L(AND)(EA)L	(AD) L(AND)5(BB)	(DR) L(AND)AL	(MD) L(AND)5R	L(AND)5L	(VR) L(AND)6L	(VA) L(AND)4L	(HA) L(AND)5(GH)

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
(4-5)(TH) THOSE	59	(HR) B(TH)	(4-5)(TH)	(AD) 5(TH)	(MD) (AR)(TH)	(HA) E(TH)	(DR) (BE)(TH)	(VA) (4-6)(TH)	(VR) (5-6)(TH)
5-Y YOUNG	60	(DR) AY(ST)(ER)	(HR) 5(AND)(ST)(ER)	(VR) 6Y(ST)(ER)	(AD) 5Z(ST)(ER)	(AD) 5N(ST)(ER)	(VA) 5(WITH)(ST)(ER)	5Y(ST)(ER)	(MD) 5(FOR)(ST)(ER)
5-H HERE	61	5H	(AD) H	(DR) AH	(MD) (5-6)H	(HR) 2H	(MD) (IN)H	(VA) 6H	(MD) (4-5)H
5-Q QUESTION	62	(DR) AQ	(AD) Q	(HR) (EA)Q	(VA) 6Q	(MD) (IN)Q	(VA) 4Q	(MD) EQ	5Q
(4-5-6)(THE) THEIR	63	(HA) (AR)(THE)	(HA) (WH)(THE)	(MD) #(THE)	(AD) (4-5)(THE)	(4-5-6)(THE)	(AD) (4-6)(THE)	(MD) W(THE)	(HR) L(THE)
5-CH CHARACTER	64	(HA) 5K	(VR) 6(CH)	(MD) (4-5)(CH)	(AD) (CH)	(VA) 4(CH)	(HR) 5(ST)	5(CH)	(DR) A(CH)

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
(4-6)E ANCE	Sample	(HR) D(4-6)I	D(4-6)E	(AD) D4E	(MD) D(4-6)(WH)	(HA) DKE	(DR) D(4-6)(EN)	(VA) D(4-5)E	(VR) D(4-6)(IN)
(5-6)E ENCE	65	(HR) F(BB)E	(VA) F(4-6)E	(VA) F(4-5)E	F(5-6)E	(DR) FBE	(MD) F(OW)E	(HA) F(EN)E	(AD) F5E
(5-6)G ONG	66	(AD) S6G	(DR) SBG	(HA) S(IN)G	(VA) S(4-6)G	(HR) S(BB)G	(MD) S(4-5-6)G	S(5-6)G	(VA) S(4-5)G
(4-6)N SION	67	(MD) MAN(4-5-6)N	(AD) MAN(4-6)M	(DR) MAN(4-6)(THE)	(HR) MANKN	MAN(4-6)N	(VR) MAN(4-6)Z	(HA) MAN(ST)N	(VA) MAN(4-5)N
(5-6)S NESS	68	(VA) SAD(4-6)S	(AD) SAD5S	(HR) SAD(BB)S	(VA) SAD(4-5)S	(DR) SADBS	SAD(5-6)S	(HA) SAD(EN)S	(MD) SAD(4-5-6)S

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
(5-6)T MENT	69	(HR) MO(5-6)(OU)	(HA) MO(EN)T	(VA) MO(4-6)T	MO(5-6)T	(AD) MO(5-6)S	(MD) MO(3-5-6)T	(VA) MO(4-5)T	(DR) MOBT
6-Y ALLY	70	(MD) RE(4-6)Y	(AD) RE6(TH)	RE6Y	(VA) RE5Y	(VA) RE4Y	(HA) RE6(AND)	(DR) REAY	(HR) RE3Y
6-N ATION	71	N6N	(HR) N3N	(VA) N4N	(VA) N5N	(AD) N6D	(MD) N(CH)N	(HA) N6(TH)	(DR) NAN

SD	Sample	(HR) SF	(AD) ID	(DR) (AR)D	(MD) TD	SD	(VR) (CH)D	(VA) (TO)D	(HA) (OW)D
(CH)N	72	(CH)N	(MD) (CH)Y	(VR) (CH)Z	(HA) (4-6)N	(AD) (CH)D	(VA) (CH)T	(DR) (CH)(THE)	(HR) (ST)N

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
AG(ST)	73	(MD) AG(ING)	(HR) AG(CH)	(VR) A(GG)(ST)	(AD) AG	(HA) AGK	(VA) AN(ST)	AG(ST)	(MD) A(ER)(ST)
O3C	74	O3C	(HR) O6C	(VA) O3I	(AD) K3C	(DR) O4C	(HA) (AR)3C	(VR) OAC	(MD) O3F
GRT	75	(VR) (GG)RT	(AD) GLT	(MD) GR(WITH)	GRT	(AD) GRS	(HR) GWT	(HA) GR(OU)	(VA) GRN
M(ST)	76	M(ST)	(DR) (ING)(ST)	(VA) O(ST)	(HR) M(CH)	(AD) (CH)(ST)	(MD) M(AR)	(VR) U(ST)	(HA) MK
FR	77	(HR) FW	(DR) (3-5-6)R	(VA) HR	FR	(VR) (2-3-6)R	(MD) F(OF)	(AD) BR	(HA) DR
F(ST)	78	(DR) (3-5-6)(ST)	(VA) FI	(HR) D(ST)	F(ST)	(HA) FK	(AD) F4	(MD) F(ING)	(VR) (2-3-6)(ST)

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
YRF	79	(HR) YWF	(AD) YR	YRF	(VR) YR(2-3-6)	(MD) YRP	(VA) YRM	(DR) YR(3-5-6)	(HA) Y(OU)F
LR	80	(HR) LW	(VA) LP	(AD) LL	LR	(MD) VR	(AD) BR	(HA) OR	(HA) LT
H(ER)F	81	(HR) J(ER)F	(AD) HGF	(MD) (OU)(ER)F	(DR) H(OF)F	(VR) H(WITH)F	(HA) H(ER)D	(VA) H(ER)M	H(ER)F
M(CH)	82	(MD) MU	M(CH)	(AD) MA	(DR) (ING)CH	(VA) S(CH)	(HA) MK	(VR) U(CH)	(HR) M(ST)
TD	83	(MD) TN	(HR) RD	TD	(DR) T(2-3-6)	(HA) (OU)D	(VR) T(3-5-6)	(VA) T(SH)	(AD) SD
ALM	84	(VA) ALS	(HA) A(GH)M	(AD) ABM	(HR) AL(SH)	ALM	(DR) AL(ING)	(MD) ELM	(VR) ALU

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
HMF	85	(VR) (TO)MF	(VA) H(O)(F)	(MD) HNF	(HA) JMF	HMF	(AD) HM	(HR) HMD	(DR) H(ING)F
QK	86	(DR) (WITH)K	(AD) GK	(MD) QU	QK	(VA) Q(BB)	(HR) (ER)K	(VR) (OF)K	(HA) Q(ST)
(BE)H	87	(HR) (BE)J	(VA) KH	(VR) BH	(MD) (BE)G	(DR) (4-5)H	(HA) (IN)H	(AD) (BE)(CC)	(BE)H
(THE)MVS	88	(AD) SMVS	(THE)MVS	(HR) ZMVS	(VA) (THE)MRS	(DR) NMVS	(HA) (THE)(SH)VS	(MD) (THE)XVS	(VR) (ED)MVS
ADV	89	(AD) AB	(HA) AEF	(MD) AB(OF)	ABV	(HR) AB(BLE)	(DR) AB(TH)	(VA) AKV	(VR) ADP
HM	90	(VR) HU	(VA) HO	HM	(AD) BM	(DR) H(ING)	(HR) JM	(MD) HMF	(HA) H(SH)

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
TN	91	(AD) TM	(VA) TX	(AD) TD	(MD) TY	(HA) WD	(HR) T(ED)	TN	(VR) TZ
(BE)L	92	(HA) (BE)S	(AD) (BE)B	(MD) (BE)V	(HR) (5-6)L	(MD) LL	(VA) KL	(BE)L	(VR) BL
ALT	93	ALT	(HA) ALR	(HR) AL(OU)	(MD) APT	(VA) AL(THE)	(MD) ART	(AD) ABT	(HA) ALW
S(CH)	94	(HR) S(ST)	S(CH)	(VR) (GH)D	(VA) M(CH)	(MD) S(SH)	(AD) I(CH)	(DR) (AR)(CH)	(HA) SK
(OU)RVS	95	(VA) (OU)PVS	(MD) (OF)RVS	(AD) (OU)RVI	(DR) (OU)R(TH)S	(OU)RVS	(HR) (OU)R(BLE)S	(HA) (OU)TVS	(VR) (OU)RPS
YRVS	96	(HA) YRZS	(AD) YOVS	(VR) YRPS	YRVS	(VA) YRVM	(MD) YRVT	(HR) YWRS	(DR) YR(TH)S

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
(BE)N	97	(AD) (BE)D	(MD) (BE)Y	(DR) (BE)(THE)	(VR) BN	(HA) (IN)N	(HR) (BE)(ED)	(VA) (BE)T	(BE)N
NEC	98	(VA) NEI	NEC	(DR) N(EN)C	(VR) ZEI	(HA) NBC	(MD) NEF	(HR) NIC	(AD) NEA
AFW	99	AFW	(MD) AGW	(VA) AHW	(HA) AFT	(AD) AF	(DR) 6FW	(VR) 3FW	(HR) AFR
DCLG	100	(HA) DC(GH)G	(VR) DCL(GG)	(VA) DCLN	DCLG	(AD) DCLD	(MD) DCL(ER)	(HR) FCLG	(MD) DCVG
DCV	101	(AD) DAV	DCV	(MD) NCV	(HA) FCV	(AD) DCL	(HR) DC(BLE)	(VA) DEV	(VR) (BY)CV
5(O)(F)	102	(HA) 5LF	(MD) (CON)(O)(F)	(AD) 5KF	(MD) E(O)(F)	(VA) 5OH	5(O)(F)	(AD) (O)(F)	(HR) 5OD

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
RJCG	103	(AD) RJCD	(VA) R(AR)CG	(VR) RJ(3-6)G	(HA) TJCG	(DR) R(FF)CG	RJCG	(MD) RWCG	(HR) RHCG
(TH)YF	104	(AD) (TH)XF	(TH)YF	(HR) PYF	(VR) (TH)Y(2-3-6)	(DR) VYF	(VA) WYF	(MD) (TH)YP	(HA) (TH)(AND)F
P(ER)CVG	105	(AD) P(ER)CVD	(HR) PQCVD	(VR) P(ER)CPG	(HA) N(ER)CVG	P(ER)CVG	(MD) P(ER)DVG	(VA) P(ER)EVG	(DR) P(OF)CVG
RCVG	106	(HA) TCVG	(VA) PCVG	(MD) RCV(ER)	(HR) WCVG	RCVG	(DR) RC(TH)G	(VR) RCV(GG)	(AD) RCVD
AL(TH)	107	(HA) A(GH)(TH)	AL(TH)	(DR) 6L(TH)	(MD) AV(TH)	(HR) ALP	(VR) AL(BLE)	(VA) ALW	(AD) AL
(BE)Y	108	(MD) (BE)(FOR)	(AD) (BE)C	(VR) (B)(Y)	(HA) (IN)Y	(HR) (BE)(AND)	(AD) (BE)N	(VA) KY	(BE)Y

Sign	Line no.	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8
(CON)CV	109	(DR) (CON)C(TH)	(AD) (CON)CL	(MD) (CON)DV	(VA) (CON)EV	(HA) (CON)CZ	(VR) (CON)(3-6)V	(HR) (CON)C(BLE)	(CON)CV

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